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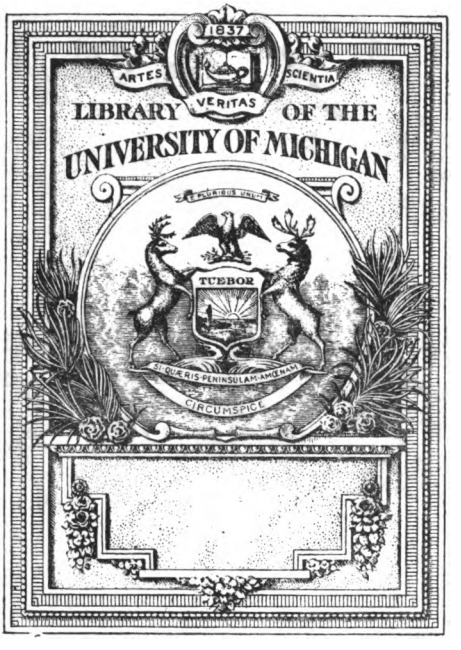

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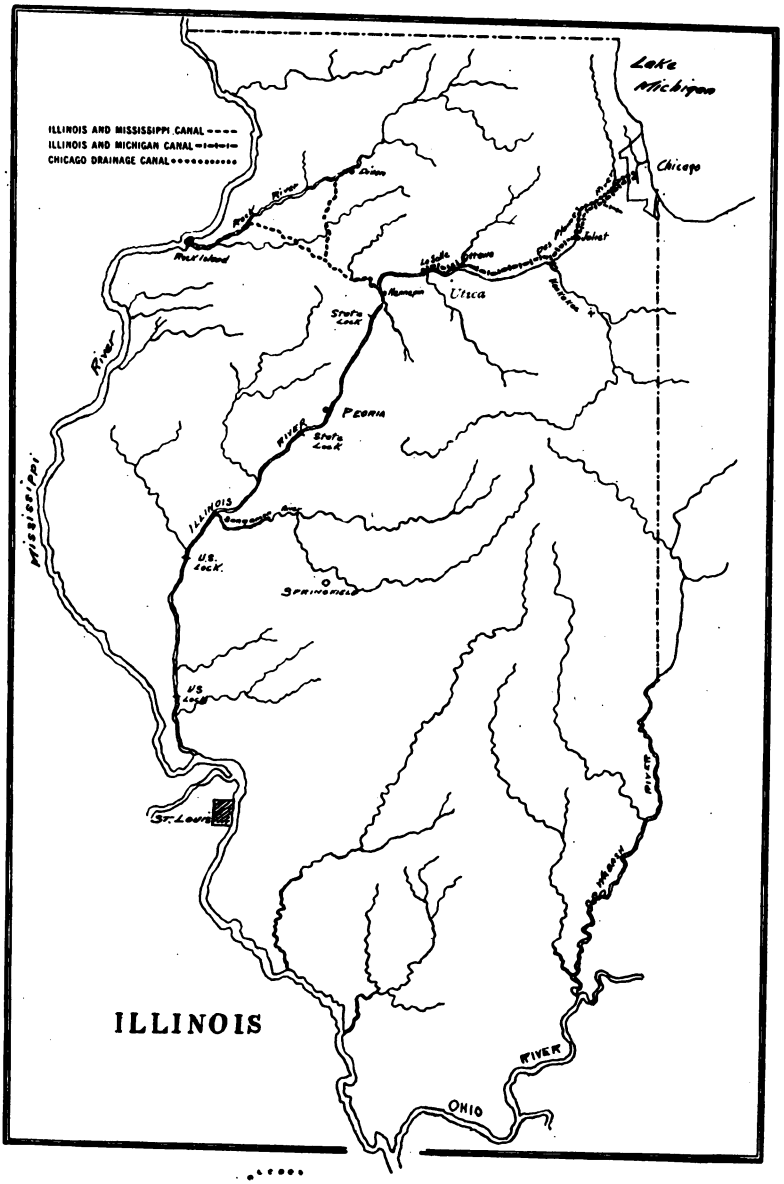
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CHICAGO HISTORICAL SOCIETY'S COLLECTION, VOL. X.

THE ILLINOIS AND MICHIGAN CANAL

A Study in Economic History

By JAMES WILLIAM PUTNAM, Ph. D.
PROFESSOR OF ECONOMICS IN BUTLER COLLEGE

Illinois Centennial Publication

THE UNIVERSITY OF CHICAGO PRESS
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PREFATORY NOTE

The approaching centennial of the admission of Illinois into the Union awakens a new interest in the agencies that contributed to the making of the state. The following pages are, therefore, given to the reader in the hope that they may shed some light on the economic development of the commonwealth, and with the further hope that they may be of some service to those who interpret our country's economic history in its larger phases. Originally prepared as a doctoral dissertation at the University of Wisconsin, the study is subject to the limitations and characteristics of such monographs. In the preparation of the manuscript for publication, the statistics and discussions in Chapters III and V have been made to cover the developments that have taken place since the dissertation was first written. Otherwise the study retains its original form. The delay in publication has been due to a hope that the controversy over the character of the enlarged waterway might be finally settled before these pages were put into print.

Acknowledgment is hereby made of the indebtedness of the writer to the many persons through whose courtesy the investigations were rendered less laborious than they would otherwise

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have been. The officials and attendants at the several libraries were uniformly courteous and obliging as were also those at the canal office. The transportation men and shippers likewise rendered substantial aid in the acquisition of facts which would otherwise have been inaccessible. But these acknowledgments would not be complete without mention of the helpful suggestions of Professor Richard T. Ely during the progress of the work and of the reading and criticism of the manuscript by my friend and former colleague, Professor Murray Shipley Wildman. Miss Caroline M. McIlvaine of the Chicago Historical Society rendered invaluable assistance during the investigation and while the volume was passing through the press.

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INTRODUCTION

Recent years have revealed an apparent reawakening of interest in the improvement of our national waterways. A century ago the subject of waterway improvement occupied a large place in public and private consideration. But for more than two generations of men the public interest in water transportation has steadily declined. The reasons for this decline are obvious. In the early days the waterway furnished not only the cheapest but also the most expeditious means of transit for persons and property. But with the growth of the railway net, speed and convenience passed from the steamboat and canal barge to the railway train. In spite of the fact that cheapness, a third important element in the transportation problem, remained with the waterway, whenever and wherever adequate facilities were provided for properly handling the traffic, the increasing efficiency of the railways gradually led to the neglect of the waterways and of their transportation facilities. All but the most important fell into disuse and were entirely abandoned. Not until inconvenienced by annoying car shortages and rate discriminations did the public again give serious thought to the possibilities of a rejuvenated water traffic.

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Throughout the years of discouragement for the waterways some of them, and these naturally the most important, kept up a portion of the services of former days and demonstrated their ability, under favorable conditions, to furnish cheap and satisfactory transportation, especially for cheap and bulky commodities. The experience of the public, confirmed by numerous decisions of the Interstate Commerce Commission, also demonstrated the fact that these water routes exercised a potent influence on railway charges at competitive points. The experience of other countries also, and especially that of Belgium, France, and Germany, confirmed the public mind in the belief that a well-arranged and effective system of waterways would serve the double purpose of supplementing the railways as transportation agencies and of exercising a degree of control over railway rates. This belief prepared the way for a renewed interest in waterway development in this country. This interest manifests itself in improvements already begun and in the lavish expenditures Congress is permitted to make for all sorts of possible and impossible schemes for waterway improvement.

It is a noteworthy fact that the waterways for whose improvement there is now the strongest demand are mainly those which formed the great highways of commerce nearly a century ago.[1]

[1] This statement ignores, of course, the exigencies of "pork barrel" legislation. It considers rather the rational demands of commercial advantage.

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Chief among these are the Erie Canal and the Mississippi River with its important tributaries. Each of them played a large part in the commercial development of the Middle West. But each acquires added importance when united with the other, so that they unitedly form a commercial highway extending from the Atlantic, through the Great Lakes down to the Gulf of Mexico, and reaching the large and growing trade of the interior. At the middle of last century these two great commercial routes were united by two canals across the state of Ohio, one in Indiana, one in Illinois, and one in Wisconsin. Aside from the Illinois and Michigan Canal, however, these did not prove of great importance as parts of such a continuous waterway, whatever their local importance may have been. All the others were more seriously handicapped by a large lockage and a shortage of water supply than was the Illinois and Michigan Canal. As a consequence they more readily lost their importance as parts of a larger system and gradually fell into disuse even as local trade routes. The route of the Illinois and Michigan Canal is the only one that is practicable for a connecting waterway that would be at all adequate for the needs of present day commerce, to say nothing of the probable needs of the future. No one now seriously proposes any other route for the connecting link in the proposed great waterway system.

In its essential features, the present movement for a deep waterway between Lake Michigan and

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the Mississippi River is not a new one. It is only the latest phase of a project which took definite form in the early part of last century and which, in its evolution wielded a large influence on the early economic development of the state of Illinois and, incidentally, on much wider commercial interests. At the inception of the project, it was assumed that a short canal of moderate dimensions connecting Lake Michigan with the Illinois River would amply serve the purpose of affording an effective continuous waterway from the Great Lakes to the Gulf of Mexico. It was to serve this purpose that the Illinois and Michigan Canal was constructed. However, the industrial and commercial growth of the region and the ineffectiveness of the Illinois River as a commercial route, in periods of low water, led to an ever increasing demand for an improvement of the entire route, a demand which was unheeded for a quarter of a century and which has been only partially and quite inadequately met to the present day. The demand for a deep waterway from the Lakes to the Gulf is only a demand for the doing in a twentieth century way what the Illinois and Michigan Canal did in a nineteenth century way.

The history of the Illinois and Michigan Canal is worthy of more than passing interest, not only because it was the forerunner and in a large measure the creator of the present deep waterway movement, but also, because in the manner of its financing and construction and its local influence, it is typical of many of the canals of this country

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and especially those of the Middle West. It differs from most of them, however, in having occupied a more strategic position and having wielded a more extensive influence than they did. In tracing the history of this canal, an effort is made to sketch the evolution of the project, the difficulties incident to the financing and construction of the work, the successes and failures of the canal as a transportation agency, its influence on the economic development of the region which it has so long served, the conditions which led to the present movement for an enlarged and deepened channel, and, finally, the progress thus far made toward the achievement of these larger plans.

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THE ILLINOIS AND MICHIGAN CANAL

Chapter I

THE PROJECT

No problems in American economic history have been more persistent than those incident to transportation. In varying forms, from the colonial days to the present, they have continually pressed for solution. One of the earliest of these problems, as well as one of the most persistent, was that of adequate facilities for cheap transportation between the interior and the seaboard markets. The products of the interior could reach the seaboard by either of two principal routes. The first was by way of the Mississippi to New Orleans; the second, by way of the Ohio and thence overland from Wheeling to Baltimore or from Pittsburgh to Philadelphia. Neither of these routes was satisfactory. Both as a local market and as an export market New Orleans failed to meet the needs of the interior. The limited population of the city and its adjacent trade territory demanded only a small part of the food products of the upper portion of the

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valley.[1] The export trade was also still small and was subject to the embarrassments which hampered all our foreign trade during the first decade and a half of the nineteenth century, while the route from Cincinnati, Louisville, or St. Louis to the Atlantic cities by way of New Orleans was circuitous and expensive for domestic trade. All these facts combined to make New Orleans a poor market in which to sell the products of the interior. The supply usually exceeded the demand and the price was, therefore, correspondingly low.[2] The long and expensive over-land carriage between the Ohio and the eastern markets rendered this route impracticable except for such commodities as possessed a relatively high value for a moderate weight and bulk.[3] The chief exports of the interior were not of this kind. A third possible route was afforded by the Great Lakes and their eastern connections, either down the St. Lawrence to Montreal or to New York by way of the Mohawk and Hudson trade route. For lack of commercial connections, however, between the Mississippi or the Ohio and the Great Lakes, the latter route was not available for the commerce of the interior with the exception of that

[1] In 1810, the entire population of the state of Louisiana was only 76,556.

[2] Ford, *History of Illinois*, p. 96; *Report on the Internal Commerce of the United States*, 1888, pp. 184–186, 191–198.

[3] Turner, *Rise of the New West*, pp. 99–100; *Niles Register*, XX, p. 180; *Journal of Political Economy*, VIII, p. 36.

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of the few scattered settlements which had grown up about the fur-trading posts in the Northwest.

The problem of an improved means of communication which would bring the new West into closer and cheaper commercial intercourse with the eastern cities was recognized both by the cities themselves and by the interior as of prime importance. The bulky farm products could not pay the transportation charges and compete in the eastern seaboard markets.[1] The cost of carrying merchandise to the interior, either by way of Pittsburgh and the Ohio or by way of New Orleans and the Mississippi greatly enhanced its cost to the consumer.[2] Both the cost of exporting the products of the region and of importing merchandise operated to lessen the demand for imported commodities and to drive the remoter settlements, in a large measure, to a self-sufficing economy. Similar conditions prevailed to a greater or less degree in all the "back country."

It was the effort to relieve the economic burdens of transportation which led to the general movement for internal improvements. When private capital did not appear in sufficient abundance to

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[1]Turner, *Rise of the New West*, p. 101; McMaster, *History of the People of the United States*, III, p. 464; Andrews, *Report on Colonial and Lake Trade*, p. 278; *Annals of Congress*, 15th Cong., 1st sess., I, p. 1126.

[2]Ringwalt, *Development of the Transportation Systems in the United States*, p. 18; *Journal of Political Economy*, VIII, p. 36; Hyde and Conrad, *Encyclopaedia of History of St. Louis*, IV, p. 2291.

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develop the numerous projected works, governments of all grades were appealed to for assistance in these undertakings. In his report of 1808, Secretary Gallatin endeavored to systematize the various projects which appeared to him to merit national aid.[1] His scheme provided for an improved means of communication between the western waters and the Atlantic seaboard, but it did not provide for an adequate connection between the Mississippi valley and the Great Lakes with their proposed New York connection.

Enlarging on Gallatin's scheme, Peter B. Porter of New York, proposed the commercial connection of the Great Lakes and the Mississippi by means of a canal or a series of canals. In 1810, in an endeavor to secure the aid of the federal government for a system of waterways extending from the St. Lawrence and the Hudson to the Gulf of Mexico, he pointed out the commercial importance of such a system and the ease with which the artificial portions could be constructed, and particularly that portion connecting Lake Michigan with the Illinois River.[2] Porter's scheme was not a novel one. The commercial importance of the proposed united systems of waterways must

[1] *American State Papers*, Miscellaneous, I, pp. 724–741.

[2] *Annals of Congress*, 11th Cong., 2nd session, II, pp. 1388–1393. The fact that boats of light burden frequently passed from the Chicago river to the Des Plaines during periods of high water was widely known.

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This map shows the ancient outlet of "Lake Chicago," the course followed by the Illinois and Michigan Canal, to be the most feasible route between the Great Lakes and the great river systems.

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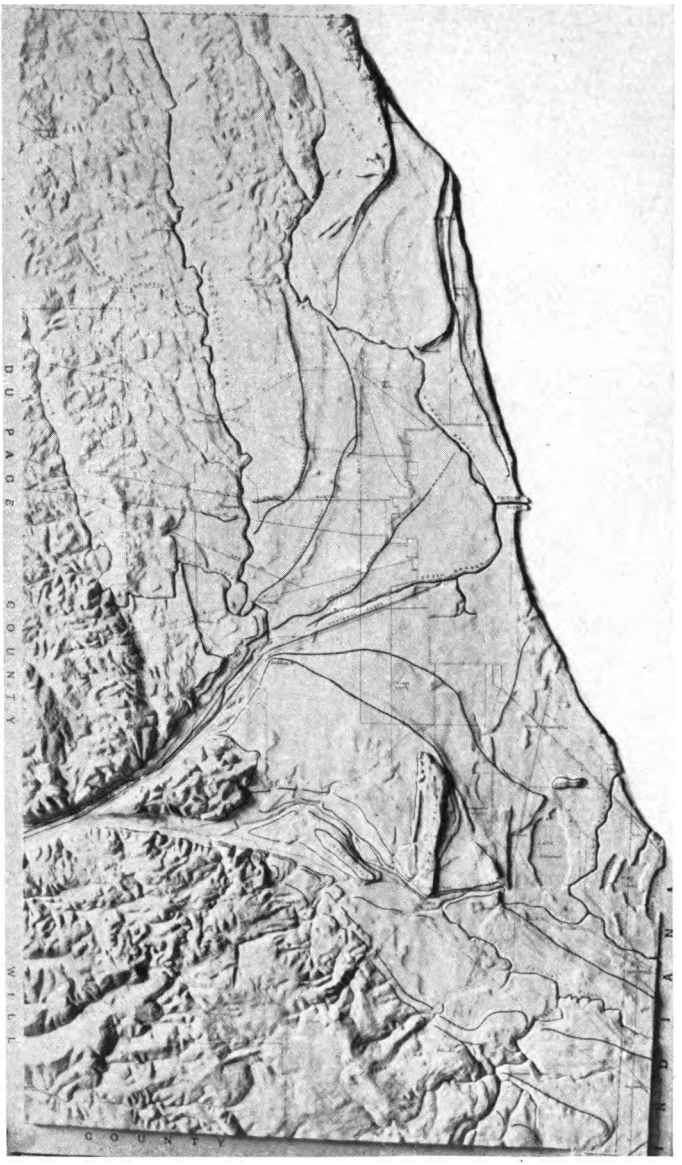

THE CHICAGO PLAIN (*Siebenthal*)

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been frequently commented upon.[1] The scheme, however, failed to secure the support of the government.

Meanwhile the legislature of New York had, at the instance of the inhabitants of the Genesee country,[2] taken up the project of a canal from the Hudson River to Lake Erie as preferable to the Lake Ontario route proposed in Gallatin's report and adopted in Porter's scheme. The accomplishment of the project was placed in the hands of a commission, which appealed for aid, not only to the federal government, but also to the state of Ohio and the territories bordering on the Great Lakes. In the Michigan territory the appeal was referred to A. B. Woodward who, in reporting adversely, took occasion to discuss the superior advantages of a waterway from the Gulf of St. Lawrence to the Gulf of Mexico, the completion of which would require only the construction of a short canal around Niagara Falls and another from Lake Michigan to the Illinois River.[3]

These suggestions had no other effect than to call more distinctly to the attention of the public

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[1] Benton, The Wabash Trade Route in the Development of the Old Northwest, in *Johns Hopkins University Studies*, XXI, p. 28; also, Winsor, *Westward Movement*, p. 24.

[2] Libby, The Early History of the Erie Canal, in the *University of Wisconsin Ægis*, March 17, 1893; Fairlie, The New York Canals, *Quarterly Journal of Economics*, XIV, p. 212.

[3] *Niles' Register*, VI, p. 139.

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the feasibility and the future importance of a canal on the proposed route, a service which *Niles' Register* took up in the summer of 1814 and continued from time to time till the project was consummated.[1] There was no local demand for the canal at the time as there was for the Erie Canal and the one at the falls of the Ohio, and several other schemes for internal improvements then being forced on the attention of Congress and the public.[2] It was also at that time of less consequence in the development of the trade between the seaboard cities and the interior than roads and canals connecting with the upper waters of the Ohio. Population northwest of Ohio was confined to a few scattered communities along the Great Lakes, whose commerce was necessarily quite limited, while the banks of the Ohio River were lined by settlements practically all the way from its source to its mouth[3] and the stream itself was a great highway of commerce.[4] The commercial interests were, therefore, still seeking primarily an Ohio River connection.

The second war with Great Britain, however, resulted in a renewed interest in the project.

[1] *Niles' Register*, VI, p. 394, 417; X, p. 427, and succeeding volumes.

[2] *American State Papers*, Miscellaneous, I and II, *passim*.

[3] *Census Maps of the United States for 1810;* also, *Tenth Census, Population*, p. xiv.

[4] Turner, *Rise of the New West*, pp. 80–82; McMaster, *History of the People of the United States*, III, pp. 483–484.

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The unfortunate experiences of that war emphasized the importance of such a route over which military and naval forces and supplies could be transported to the northern frontier expeditiously.[1] Consequently, in the Indian treaty of August 24, 1816, the first practical step toward the accomplishment of such an object was taken by the extinction of the Indian title to a strip of land along the route of the proposed waterway.[2] As a further step in the same direction, two successive examinations of the physiographic character of the region were made and the results reported to the War Department.[3]

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[1] *Treaties and Conventions between the United States and Other Powers*, pp. 413–415. This need assumed a greater importance in the public estimation after the agreement between the United States and Great Britain, April 28–29, 1817, limited the naval forces which might be kept on the Great Lakes to one vessel on Lake Champlain, one on Lake Ontario, and two on the upper lakes.

[2] *United States Statutes at Large*, VII, p. 147. Ninian Edwards, one of the commissioners who negotiated the treaty, afterwards asserted that the Indians were influenced to make the sale of this land by the oral assurance that a canal would be opened through it, thereby increasing their opportunities for trade. *Illinois Senate Journal*, 5th General Assembly, 1st session, p. 77; Edwards, *History of Illinois and Life of Ninian Edwards*, *pp. 169–175*.

[3] The first report was made by Major Stephen H. Long, on March 4, 1817, and the other by R. Graham and Joseph Philips, April 4, 1819. *American State Papers*, Miscellaneous, II, pp. 555–557.

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Both agreed concerning the importance of the proposed canal and the ease and relatively small expense of accomplishing its construction, although they differed with regard to the type of canal which should be built.[1]

Before the second of these reports had been received John C. Calhoun had come to the office of Secretary of War. With sentiments unchanged since his fight for the Bonus Bill and still an enthusiastic supporter of internal improvements, he transmitted to the House of Representatives, on its request, a comprehensive plan for a system of roads and canals, the construction of which would

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[1] Major Long proposed a canal from the Chicago River to the Des Plaines with a lock at each end and supplied with water from the Des Plaines. Graham and Philips proposed a lake-fed canal cut deep enough across the Valparaiso moraine which forms the "divide" to permit the flow from the lake to the river farther to the southwest than Long had proposed. They conclude: "The route by the Chicago, as followed by the French since the discovery of Illinois, presents at one season of the year an uninterrupted water communication for boats of six or eight tons burden between the Mississippi and the Michigan lake; at another season, a portage of two miles; at another, a portage of seven miles, from the bend of the Plein (Des Plaines) to the arm of the lake; at another, a portage of fifty miles, from the mouth of the Plein to the lake, over which there is a well-beaten wagon road, and boats and their loads are hauled by oxen and vehicles kept for that purpose by the French settlers at the Chicago." *American State Papers*, Miscellaneous, II, p. 557.

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be of military importance in the defense of the country.[1] In defense of the western portion of the northern frontier, he advocated a water communication from Pittsburgh to Lake Erie, a road from Detroit to Ohio and a canal from the Illinois River to Lake Michigan.[2] But the constitutional scruples of President Monroe, the indifference of the South and the hostility of the East to any internal improvements in the West which would result in a further migration from the North Atlantic seaboard proved fatal to his plan.

At this stage in the development of the project, local interest began to play a part. It was on the same day on which the House of Representatives passed the resolution requesting Calhoun to report a plan for a system of military roads and canals that the bill for the admission of Illinois into the Union was so amended as to place the port of Chicago within the boundaries of the State.[3] The amendment was made with the evident expectation that the state would become interested in the development of the waterway.[4] Nor was this expectation unfulfilled. In his inaugural message Shadrach Bond, the first Governor of Illinois,

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[1] Calhoun's report was dated January 14, 1819. *American State Papers*, Miscellaneous, II, pp. 533–535.

[2] Ibid. 535.

[3] *Annals of Congress*, 15th Cong., 1st Sess., II, p. 1677; also Moses, *Illinois*, I, p. 277.

[4] *Annals of Congress*, 15th Cong., 1st Sess., II, p. 1677.

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expressed the conviction that the canal would be of great importance to the state, in conjunction with the Erie Canal then in process of construction.[1] Recognizing the serious financial difficulties which lay in the way of the accomplishment of such a work by the young state, he proposed an appeal to Congress for a diversion of a portion of the funds arising from the sale of public lands in the state to that object.[2] Although no action was taken on his suggestion, the state interest became henceforth the active and dominant one in support of the project.

Matters incident to the establishment of the new state government absorbed the attention of the first General Assembly, but the second took up the question of the canal with vigor. It requested from the federal government, first, authority to construct the canal through the public

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[1] *Illinois House Journal*, 1st General Assembly, 1818, p. 10, also *Illinois Senate Journal*, 1st General Assembly, 1818, p. 10.

[2] The "Enabling Act" had provided that two-fifths of five per cent of the net proceeds of the sales of public lands in the state after January 1, 1819, should be set apart as a fund for the construction of roads leading to the state. Governor Bond proposed that Congress be memorialized to so alter the law that this fund could be used in the improvement of the navigation of water courses in the state. He believed that this fund would soon accumulate sufficiently to pay for the construction of the canal. *United States Statutes at Large*, III, p. 430; and *Illinois House Journal*, 1st General Assembly, p. 10.

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lands; secondly, the donation to the state of the sections of public lands through which the canal would pass; and, thirdly, the diversion of the two per cent road fund reserved from the proceeds of the sale of public lands in the state, to the financing of the canal construction.[1]

At the meeting of the first session of the Seventeenth Congress, Daniel P. Cook in the House of Representatives and Jesse B. Thomas in the Senate, took up the task of securing the compliance of Congress with the request of the General Assembly of Illinois.[2] Their earnest and persistent efforts resulted in the grant of authority asked, but not in the financial assistance desired. The act of March 30, 1822, restricted the land grant to the strip on which the canal should stand and ninety feet on each side of it, reserved from sale the sections of public land through which the canal would pass, and authorized the state to use in the construction of the canal any materials on the adjacent public lands.[3]

Thus authorized to construct a canal through the public domain, but with the financial problem still unsolved, the General Assembly of Illinois, by the Act of February 14, 1823, appointed a board of commissioners to determine upon the most available route for the canal and to estimate

[1] *Illinois Senate Journal*, 2d General Assembly, pp. 103, 106.

[2] *Annals of Congress*, 17th Cong., 1st Sess., I, pp. 32, 153, 160, 194, 309, 311, 525–526, 709; II, pp. 1324, 1349.

[3] *United States Statutes at Large*, III, pp. 659–660.

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its cost of construction.[1] Owing to the difficulty experienced in obtaining a satisfactory engineer, the surveys could not be undertaken for several months. In the autumn of 1823 an examination of the region was made, but no accurate survey was completed till the following year.[2] Five lines were then run and estimates made but all followed the same general course from the south branch of the Chicago River across to the Des Plaines valley and down that to the Illinois. The estimated cost varied for the different routes from $639,542.78 to $716,110.71.[3]

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[1] *Laws of Illinois*, 3d General Assembly, 1st session, pp. 151–153. The board of commissioners consisted of Emanuel J. West, Erasmus Brown, Theophilus W. Smith, Thomas Sloo, Jr., and Samuel Alexander. Col. Justus Post, of St. Louis, was the engineer, and later René Paul was also employed.

The commissioners were also directed to correspond with the governors of Ohio and Indiana relative to improving and connecting the navigation of the Wabash and Maumee rivers. The people in the southeastern part of the state were more interested in the Wabash and Lake Erie route than in that from the Illinois River to Lake Michigan.

[2] The swampy character of the region to be surveyed and the height of the water in spring and early summer rendered an earlier survey impracticable.

[3] The five estimates were as follows:

First route	$716,110.71
Second "	639,542.78
Third "	668,289.68
Fourth "	662,718.24
Fifth "	689,746.96

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While these surveys were being made the financial problem was not forgotten. Governor Coles proposed the plan of annually setting apart a portion of the revenues of the state to create a fund with which to finance the undertaking.[1] But this plan would necessarily entail a delay of several years in its consummation. Daniel P. Cook endeavored to reach the goal by a shorter road. He again appealed to Congress for the necessary funds.[2] Having failed a second time to secure a grant of the sections of land through which the canal would pass, he urged on Congress the national character and importance of the work and the propriety of its being constructed at the expense of the national government. However, he had an alternative plan. If the government still neglected or refused to undertake the work, he proposed that provision be made for its accomplishment by permitting Illinois to divert from the school fund the three per cent of the net proceeds of the sale of public lands in the state.[3] The purpose could be accomplished by changing the fund into canal stock, the profits of which would be paid into the school fund.[4] Fortunately for the public school system of the state, his plan was not adopted.

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[1] *Illinois House Journal*, 4th General Assembly, 1st Sess., p. 14.

[2] *Annals of Congress*, 18th Cong., 1st Session, II, p. 1914.

[3] *United States Statutes at Large*, III, p. 610.

[4] *Debates of Congress*, 18th Cong., 2d Sess., I, p. 99.

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Despairing of federal aid in the construction of the canal and with the state finances entirely inadequate for such an undertaking,[1] the General Assembly turned to the corporation method of financing the scheme. The Act of January 17, 1825, incorporated the Illinois and Michigan Canal Company, with a capital stock of $1,000,000, and the power to increase it.[2] The act of incorporation specified the conditions under which the work should be begun, the latest date for its completion, the dimensions of the canal to be con-

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[1] The treasury was then facing an approaching deficit, due to depreciation of the currency in which taxes were paid, to increased ordinary state expenditures, and to rebuilding the State House. Receipts and expenditures were as follows:

Funds in treasury, Dec. 1, 1824	$38,556.73
Receipts, Dec. 1, 1824 to Jan. 1, 1826	38,304.00
Total Receipts	76,860.73
Expenditures, Dec. 1, 1824 to Jan. 1, 1826	107,782.12
Deficit, Jan. 1, 1826	$30,921.39

Laws of Illinois, 4th General Assembly, 1st Sess., p. 160.

[2] *Laws of Illinois*, 4th General Assembly, 1st Sess., pp. 160–164. The incorporators were Edward Coles, Shadrach Bond, Justus Post, Erasmus Brown, William S. Hamilton, Joseph Duncan, and John Warnock. A copy of the law creating the canal company and an editorial supporting that plan of constructing the canal are to be found in the *Illinois Intelligencer* of March 25, 1825.

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structed,[1] and the tolls which the company was authorized to charge.[2] It further provided that at the expiration of fifty years the state might acquire the canal by payment of the actual cost of construction and six per cent semi-annual interest from the date of expenditure to the date of acquisition by the state. This plan for solving the financial problem was short lived. In spite of the liberality of its charter and the prominence of the incorporators, the company was not able to dispose of its stocks. Furthermore, the policy of granting away to a corporation the vast revenues which he expected the canal to earn was strenuously opposed by Daniel P. Cook, who had not lost faith in the ultimate outcome of his persistent efforts for federal aid.[3] Even Governor

[1] The dimensions of the authorized canal were: forty feet wide at the summit water level, twenty-eight feet wide at the bottom, and having a minimum depth of four feet of water. It was intended to accommodate boats seventy-five feet long, thirteen and a half feet wide and drawing three feet of water.

[2] The act authorized the following rates of toll: On boats constructed exclusively for canal traffic, not to exceed one-half cent per mile for each ton of capacity. On commodities transported: Flour, all kinds of grain, beef, pork, tobacco, domestic manufactures, and all other articles grown or produced in the state, three cents per ton per mile. Merchandise of foreign manufacture, six cents per ton per mile. All other articles not enumerated, a rate not to exceed eight cents per ton per mile. *Laws of Illinois*, 4th General Assembly, 1st Session, p. 162.

[3] Davidson and Stuvé, *History of Illinois*, p. 475.

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Coles had also come to doubt the wisdom of the policy upon which the state had entered, and recommended the repeal or radical alteration of the charter.[1] Under these circumstances the company was not loath to abandon its project and the act of incorporation was repealed.[2]

With the failure of the canal company to accomplish its object, the state again turned to Congress as the only source of immediate aid. The Adams administration had assumed a more liberal attitude toward the relation of the federal government to internal improvements than its predecessors had done.[3] Therefore, with renewed hopes the General Assembly memorialized Congress and the Illinois delegation redoubled its activities.[4] It was not, however, till March 2, 1827, that their efforts were crowned with success.[5] By an act

[1] *Illinois House Journal*, 4th General Assembly, 2d Sess., p. 11. Coles claimed that he had always favored public ownership of the canal, but had deferred to the wish of the General Assembly because he believed it better to have the canal constructed by a company than to have its construction delayed.

[2] Davidson and Stuvé, *History of Illinois*, p. 476.

[3] *Messages and Papers of the Presidents*, First annual message of J. Q. Adams, especially pp. 307–308, and 311–313.

[4] Davidson and Stuvé, *History of Illinois*, p. 475; *Illinois House Journal*, 4th General Assembly, 2d Sess., pp. 78–80.

[5] The bill was passed in conjunction with that for the Wabash and Erie Canal and contained the same provisions. It was in progress of these bills through

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of that date the federal government donated to the state of Illinois for the purpose of aiding in the construction of the canal the alternate sections of land for a distance of five miles on each side of the proposed canal.[1]

With the land grant as a basis the state began to plan for definite action regarding the long-delayed project. Under the act of January 22, 1829, a new canal commission was appointed to take charge of the work of raising the necessary funds and placing the work in process of construction.[2] Under the direction of this commission land sales were begun, the towns of Ottawa and Chicago were laid out, town lots were sold, and new plans and estimates for the work of construction of the canal were prepared. But the re-awakened hopes of the friends of the canal were

the Senate that the plan of granting alternate sections of public land in aid of internal improvements was evolved. *Debates in Congress*, 19th Cong., 2nd Sess., III, pp. 337–338.

On May 10, 1826, a bill to appropriate public land in aid of the canal failed in the Senate only by the casting vote of Vice-President John C. Calhoun. *Debates in Congress*, 19th Cong., 1st Sess., p. 698.

[1] *United States Statutes at Large*, IV, p. 234.

[2] *Revised Code of Laws of Illinois*, 1829, p. 14. The act provided for a board of three commissioners, appointed biennially by the Governor with the confirmation of the Senate. The powers and duties of the Commissioners were specified in the act. Gershom Jayne, Charles Dunn and Edmond Roberts were appointed commissioners, and employed James Thompson as surveyor.

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once more doomed to disappointment. In the first place, the financial problem had not yet reached its solution. The land sales proved disappointing. With an abundance of purchasable public land more advantageously situated with reference to transportation facilities, men hesitated to invest in canal lands till convinced that the construction of the canal would not be further delayed.[1] This assurance they did not have in 1830. Furthermore, the alternative plan for raising the necessary funds proved even less successful. On January 5, 1831, the House of Representatives refused by a decisive vote to take back the unsold portion of the donated land and issue script to the amount of $1.25 an acre for it, to be used in payment for the construction of the canal, and receivable at the government land offices in payment for public land.[2] Nor were the commissioners more successful in their search for a loan based on a pledge of the canal lands. Capi-

[1] The sales of lands and lots during 1830 amounted to only $18,924.83. The canal lands were sold in half, quarter and fractional sections, and on the same terms as the lands sold by the United States. *Revised Code of Laws of Illinois*, 1829, pp. 16–17.

[2] The bill was strongly supported by such men as Clay of Alabama, Bell of Tennessee, Duncan of Illinois, Irvine of Ohio, and Rencher of North Carolina, but was as strongly opposed by McCoy of Virginia, Martin of South Carolina and Barringer of North Carolina. The contest resulted in the defeat of the bill by a vote of 67 to 115. *Debates in Congress*, 21st Cong., 2d Session, pp. 411–417.

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talists did not look with favor on such a loan. J. H. Pugh, the president of the board of canal commissioners, visited the eastern states in quest of a loan, but the best proposition he could secure was one for a loan to the state for a term of fifteen years with interest at the rate of five per cent.[1] The proposition was not accepted.

Meanwhile, a new menace to the canal project had arisen. By the beginning of 1831, the idea that the railroad was destined to be the mode of transportation of the future was gaining adherents in Illinois. There were already those who believed that a railroad from Chicago to Peru would prove more beneficial to the state than would the proposed canal.[2] Their position was soon strength-

[1] The capitalists of New York and Albany were willing to furnish the necessary funds on any one of five plans: First, they would take the donation of land, construct the work and own both the land and the work; secondly, they would subscribe, under a charter, one-half of the stock in a railroad and own the land and the work jointly with the state; thirdly, they would lend the state the necessary funds to construct it; fourthly, they would subscribe the stock under a charter of incorporation; fifthly, they would subscribe for one-half of the stock on condition that the state would sell them one-half of the donation of land at $1.25 an acre. The commissioners refused to consider any of these propositions except the third. Cf. Report of the Canal Commissioners, *Illinois Senate Journal*, 8th General Assembly, pp. 225–226.

[2] An amendment, March 2, 1833, to the act donating the land to the state in aid of the construction of the canal authorized the construction of a railroad instead,

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ened by the added argument that it would also be the cheaper of the two to construct. James M. Bucklin, chief engineer for the canal commission, estimated that a canal supplied with water from Lake Michigan would cost $4,107,440.43; that a "shallow cut" canal with the summit level elevated eight feet above the level of Lake Michigan and receiving its water supply from Ausogonaskki reservoir and from the Calumet and Des Plaines rivers could be constructed for $1,601,695.83; and that a railroad could be built for $1,052,488.19.[1]

The estimates of the engineer and the result of J. H. Pugh's investigations in the East convinced the canal commissioners that the railroad was the more desirable work for the state to undertake. Therefore, in their report to the General Assembly, January 7, 1833, they advocated the building of a railroad, assigning three reasons in support of their recommendation: First, it would be cheaper to construct; second, it would be open to commerce all the year, whereas the water in the locks of a

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at the option of the state. The same act extended, for a period of five years, the time limit within which the work must be begun. *United States Statutes at Large*, IV, p. 662.

[1]The surveys and estimates were made in 1830 and 1831, although the official report was not made to the General Assembly till two years after. Bucklin's preliminary estimate for the cost of the railroad was $964,168.74, but it was revised before his final report. *Report of the Board of Canal Commissioners*, 1833, p. 17. Preliminary report given in *Illinois Senate Journal*, 8th General Assembly, p. 61.

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canal might often be frozen while the Illinois River and Lake Michigan were navigable; third, it would be a more rapid, and a better mode of transportation and travel than the canal.[1]

Although formerly a supporter of the canal project, Governor Reynolds had, also, arrived at the same conclusion. In his message to the General Assembly, December 4, 1832, he advised careful and serious consideration of the question as to whether a railroad would not be preferable to the canal, and concluded,—"I consider it the only practicable mode of connection."[2] But the General Assembly was unable to settle the vexing question.[3] It abolished the canal commission and left the state without either canal or railroad.[4]

The failure of the General Assembly to provide for an improved means of transportation between Chicago and the Illinois River was a source of great disappointment to the inhabitants of that region.[5] Such an improvement was daily becoming more imperative. The trend of immigration was setting in that direction. Within four years from the date of sale of its first town lots Chicago had become a thriving village of 1,200 people, and had already begun to lay the foundation of its

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[1] Report of the Canal Commissioners, *Illinois Senate Journal*, 8th General Assembly, p. 219.

[2] *Illinois Senate Journal*, 8th General Assembly, p. 22.

[3] *Laws of Illinois*, 8th General Assembly, p. 113.

[4] By act of March 1, 1833.

[5] *Chicago Democrat*, December 10, 1833.

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commerce,[1] but it sorely needed better facilities for carrying on commercial intercourse with the interior. But the interior was in even greater need of the benefits which a canal would render. The scattered but growing settlements between Chicago and the Illinois River were dependent on overland transportation for the sale of their produce and the purchase of their merchandise. The construction of the canal would promote the industrial development of the region by giving a better market to its products and by diminishing the cost of its imports, thereby increasing rents and property values. But such a connection between the two great systems of waterways would have more than a local influence. It would reduce the prices of New York merchandise to all the region beyond Chicago located near a navigable stream, and increase the price of farm produce.[2] The Erie Canal and the Great Lakes furnished a commercial

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[1] *Niles' Register* states, on the authority of a Chicago paper, that 180 vessels had arrived at that port during the season of 1834, whereas two years before a dozen would have been considered a large number for the season. *Niles' Register*, XLVII, p. 55.

[2] The usual price of wheat at Buffalo was from $1.12 to $1.25, while on the Illinois River its average price did not exceed fifty cents. It was estimated that with a canal charging the same rates as the Erie Canal wheat could be sent to Buffalo from Beardstown, on the Illinois River, for thirty-seven and a half cents a bushel. Cf. Report of Senate Committee on Internal Improvements, *Illinois Senate Journal*, 9th General Assembly, p. 244.

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route from New York to Chicago. Steamboats were plying on the Illinois River as far up as Peoria, and could readily extend their operations to La Salle, the western terminus of the proposed canal.[1] In spite of the comparatively heavy cost of transporting merchandise by wagon across the country from Chicago, this route was cheaper than the ocean and river route by way of New Orleans.[2] It was therefore evident that with a means of cheapened transportation between Chicago and the Illinois River the traffic on that route would be largely increased.

From such conditions developed the agitation which determined the issues of the political campaign of 1834, so far as the northern portion of

[1] Drown, *Record and Historical View of Peoria*, p. 107.

[2] Enoch C. March, of St. Louis, claimed to have received merchandise from New York by way of the Lakes at one-third less percentage for freight and insurance than he had been accustomed to pay through the other route. Also, a Mr. Linton, a merchant at Terre Haute, Indiana, repeatedly assured members of the Board of Canal Commissioners that during three preceding years (1830–1833) he had brought his goods from New York by way of the Lakes, and transported them in wagons from Chicago to Terre Haute, a distance of 170 miles, at a less cost for freight than he had previously paid on the other route. *Report of the Board of Canal Commissioners*, 1833, p. 4.

In 1835, Mitchell said that the completion of either a canal or railroad would make Chicago a place of consequence and an admirable distributing point for eastern merchandise in the Mississippi Valley. Mitchell, *Compendium of Canals and Railroads*, pp. 76.

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the state was concerned.[1] Men were chosen to the General Assembly entirely on the basis of their known attitude toward the question of the canal.[2] Joseph Duncan, a staunch supporter of the canal project, was elected Governor. His interest in the project was evinced by the fact that more than one-third of his entire inaugural address was devoted to an effort to convince the General Assembly that the interests of the state would be better served by the canal than by a railroad.[3] He pointed out three specific advantages which the canal would possess: first, it would bring into commercial relations the vast extent of territory tributary to the two great systems of waterways which it would unite; second, it would improve the navigation of the Illinois River by turning into its channel a large volume of water through a lake-fed canal; third, it would render every farmer independent of the monopoly of railway transportation by enabling him to transport his own produce to market. Duncan not only argued for a canal but he argued for one large enough to permit steamboats to pass freely from the Illinois River to Lake Michigan.[4]

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[1] *Chicago Democrat*, June 11, July 16, July 30, August 6, and October 8, 1834.

[2] *Chicago Democrat*, August 6, 1834.

[3] *Illinois Senate Journal*, 9th General Assembly, pp. 21–29; also, *House Journal*, pp. 25–33.

[4] *Illinois Senate Journal*, 9th General Assembly, p. 26. The superior advantages of a steamboat canal over either an ordinary canal or a railroad were urged by

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The Governor's message, however, was not the only influence brought to bear on the General Assembly in favor of the canal. Newspapers and mass-meetings were used with effect. The *Chicago Democrat* was particularly active in presenting arguments favorable to the canal and in answering those of its opponents.[1] Lengthy mem-

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"A Peorian" in the *Sangamo Journal* of January 23, 1834. The article also appeared in the *Chicago Democrat* of February 25, 1843. Benjamin Mills, editor of the *Galena Advertiser*, opposed the canal, and especially Duncan's plan for a steamboat canal. He considered such a work expensive and inadequate. A transfer of freights would have to be made at Chicago, because river steamboats could not navigate Lake Michigan. As an offset to Duncan's arguments in favor of the canal, he specified seven particulars in which the raiload was preferable to the canal:

First, it would be cheaper to construct.
Second, it would be cheaper to maintain.
Third, it would have greater durability.
Fourth, it would furnish cheaper transportation.
Fifth, it could operate during all the year.
Sixth, it would have greater speed.
Seventh, it would offer perfect certainty of operation. *Chicago Democrat*, January 21, 1835.

[1] *Chicago Democrat*, January 14 to December 30, 1834. It was the custom of the paper to copy editorials from the down-state papers and commend or contest the opinions expressed, as they chanced to support or oppose the canal project. It was particularly hostile to the proposals of the *Alton Spectator* and the *Beardstown Chronicle* for a railroad from the Mississippi River to the Wabash River or to Lake Erie in order to shorten the route to Buffalo, claiming that such a work

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orials to the General Assembly were adopted by mass meetings of citizens of Cook and La Salle counties,[1] urging the construction of the canal and laying special stress on the fact that it would furnish cheaper transportation than the railroad would for bulky articles such as the outgoing and much of the incoming freight would be. For these classes of freight cheapness of transportation was of more consequence than speed. The author of the memorial showed clearness of economic vision by pointing out the fact that the saving in freight charges would be capitalized into taxable property values.

The friends of the canal could also point to the favorable opinions of men less influenced by local interests. On June 6, 1834, General Charles Gratiot, chief of the Corps of Engineers of the United States Army, in a report to the Committee on Roads and Canals in the House of Representatives, strongly urged the construction of the canal from the Illinois River to Lake Michigan as one of the most important of public works. His

would be poor "state policy," because Illinois would have to help bear the financial burdens of Indiana and Ohio through freight charges, whereas the Illinois and Michigan canal would lie entirely within the state and its earnings would be wholly for the benefit of the state.

[1] The former November 5 and the latter December 2, 1834. These two counties at that time comprised all the territory embraced in the canal region. For accounts of the meetings, see *Chicago Democrat*, November 5 and December 17, 1834.

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view of the relative importance of a canal and a railroad on this route was expressed in these words: "There would seem to be, in a position such as this, and to accomplish objects so vast, no question as to which of the usual means, railroad or canal, should be resorted to. The exclusive character of the first; the repeated handling of the commodities transported over it, always attended with expense; the complication of machinery, and the consequent liability to accident and detention, as well as the principle of rapid decay, inseparable from the materials used in its construction, seem to offer to my mind objections not to be overcome. A canal, on the contrary, would afford facilities commensurate with the great thoroughfares it would connect, and the vast amount of produce afloat upon them during a greater portion of the year, or in waiting upon their shores." [1] On June 25, 1834, the Committee on Roads and Canals reported to the House in favor of the construction of a canal of sufficient dimensions to permit river and lake steamers to pass through without unloading, a matter of especial consequence in the transportation of bulky or breakable articles. The committee was emphatic in its preference of a canal on this route. Although these reports did not lead to favorable action on the part of Congress, they were published

[1] *Chicago Democrat*, December 10, 1834. Also, *House Committee Reports*, No. 546, 23rd Congress, 1st Session, p. 14.

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in Illinois newspapers and reinforced the arguments of the friends of the canal.[1]

With all these reassurances of the importance of the canal and the demand for its construction, the General Assembly took the matter up at the beginning of the session. The committees on Internal Improvements in both the House and the Senate made long reports in favor of the immediate construction of the canal, repeating in detail the most important arguments that had been advanced in support of the project and urging as a reason for immediate action that the needs of the state and the condition of public opinion both demanded such a course. The majority of the members of both houses accepted the views of the committees and, by an act approved February 10, 1835, provided for the appointment of a third canal commission, and invested it with powers thought to be ample to raise the necessary funds and to place the work in process of construction.[2]

[1] *Chicago Democrat*, December 10, 1834; also *House Reports*, No. 546, 23rd Congress, 1st Session. The Committee accounted for the recent growth of railroad sentiment in these words: "A prejudice of natural origin pervaded all the first inquiries on this subject. The imagination was led captive by the flying motion of a railroad car, impelled by one of the most powerful agents hitherto discovered by the ingenuity and subject to the control of man."

[2] *Laws of Illinois*, 9th General Assembly, 1st Session, pp. 222–226.

The Commission consisted of five men appointed by the Governor with the ratification of the Senate. The member known as the "Acting Commissioner" was practically the general Superintendent of the work.

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Chapter II

FINANCE AND CONSTRUCTION

It was a Herculean task that the young state had set for itself; but, led on by that large optimism which has ever been characteristic of the continually advancing West, the people of Illinois were not dismayed by the magnitude of the undertaking. With prophetic vision they beheld the completed canal bearing on its placid waters the products of the East, the West, the North, and the South; they saw the cities, villages, farms, and factories which would ultimately come into being along its course; but they did not see so clearly the intervening difficulties, which lay like the sunken road of Ohain between project and accomplishment. For ten years the commercial and industrial importance of the Erie canal had been a familiar story to the people of Illinois, and they confidently expected to see that history repeated in their own state.

The undertaking had been long delayed because of the lack of funds with which to pay the cost of construction. New York and Ohio had financed their canals by means of loans. Pennsylvania had undertaken a great system of internal improvements financed in the same way. With the land grant as a basis, and with the expected earn-

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ings of the canal as an additional security, the method of loan financiering seemed entirely feasible.[1] It was, therefore, to this method that the state first turned, and on this method it chiefly depended to the end.

The act of February 10, 1835, which provided for the appointment of the new canal commission, authorized the Governor to negotiate a loan not exceeding $500,000 on a pledge of the canal lands and tolls, and "such other means as the government of the United States may hereafter give toward the construction of the Illinois and Michigan Canal."[2] As evidences of indebtedness the state issued certificates known as Illinois and Michigan Canal Stock, drawing five per cent interest and payable at the option of the state any time after 1860.[3] The proceeds of this loan as well as those from the sale of lands and lots, and from the later operation of the canal itself, when completed, were to constitute a canal fund intended entirely for the construction of the canal and the payment of interest on the canal debt.

Correspondence was at once entered into with New York financiers, and Ex-Governor Edward

[1] Report of the Senate Committee on Internal Improvements, in *Illinois Senate Journal*, 1834–5, pp. 97–99.

[2] The members of the General Assembly, as well as Governor Duncan, believed that if the land grant already made should prove inadequate to pay for the construction of the canal, the federal government would supplement it by further grants.

[3] *Laws of Illinois*, 1834–5, pp. 222–223.

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Coles was appointed the special representative of the state to visit the eastern cities and negotiate the loan.[1] But his efforts with the financiers of New York and Philadelphia and with the agents of the Rothschilds proved entirely futile. Basing their opinions on the experience of the Erie Canal, some of the New York bankers were convinced, however, that the loan would eventually be a safe one because, by giving to Illinois both an eastern and a southern seaport connection, the canal would lead to such an economic development of the region as to greatly enhance the value of the canal lands;[2] but in the meantime no sufficient provision was made for the payment of the interest if the sale of lands and lots should fail to provide the necessary funds. Furthermore, as interest rates in this country were at that time higher than five per cent, it would be necessary to dispose of the canal stocks in Europe, and the European financiers were not disposed to accept loans based on wild lands in the United States.[3] Other states had pledged the faith of the state in support of the loans which they had raised for similar purposes, and the bankers who had taken up their stocks

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[1] *Illinois House Journal*, 1835–6, pp. 12–13.

[2] Letter of J. Delafield, President of the Phenix Bank of New York, to Edward Coles, April 20, 1835; in *Illinois House Journal*, 1835–6, pp. 19–21.

[3] Letter of Edward Coles to Governor Duncan, dated at Philadelphia, April 28, 1835; in *Illinois House Journal*, 1835–6, pp. 14–18.

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would not accept those of Illinois on any other terms.[1]

As a result of his experience and the conferences held with the financiers, Coles became convinced that the loan could be raised only on a pledge of the faith of the state as to the payment of both the principal and the interest.[2] Having been brought to the same conclusion, Governor Duncan urgently recommended to the General Assembly that such a step be taken. He the more readily made the recommendation because he was convinced that in no case would the burden of the debt fall on the state. Basing his opinion on the prices received by the federal government at the sale of its alternate sections of land at Chicago in the previous June, he considered the market value of the canal lands to be abundantly ample to reimburse the state.[3] He expected the value of the land to continually advance with the progress of the work, and ultimately to bear the entire cost of the construction. Furthermore, having but recently left the halls of Congress, he thought he knew the temper of that body well enough to

[1] Letter of J. Delafield to Edward Coles, dated, New York, April 20, 1835; in *Illinois House Journal*, 1835–6, pp. 19–21.

[2] Letter of Edward Coles to Governor Duncan; in *Illinois House Journal*, 1835–6, pp. 14–18. Also, letter of Charles Butler to Edward Coles; in *Illinois House Journal*, 1835–6, pp. 21–22.

[3] The estimates of the market value of the land at that time varied from $1,000,000 to $3,000,000, but probably averaged about $2,000,000.

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safely count on an additional grant of land if it should be found that the grant already made was not sufficient to cover the expense of constructing the canal.[1] The recommendation met with a ready response on the part of the General Assembly.[2] Accordingly, on January 9, 1836, a new act was passed reorganizing the canal commission and pledging the credit and faith of the state to the payment of the principal and interest of the loan.[3]

A new commission was appointed at once and used every effort to get the canal under way at the earliest possible moment, believing that the more actively the work was pushed, the easier would be the task of financing it.[4] But the fact soon

[1] Governor Duncan's message, December 8, 1835; in *Illinois Senate Journal*, 1835–6, pp.6-10.

[2] The Senate Committee on Internal Improvements estimated the value of the canal property as follows:

About 250 lots in Chicago.....	$ 312,500.00
250 lots in Ottawa.....	50,000.00
277,383 acres of land (at $5 per acre)..	1,386,915.00
Fractional section 15 adjoining Chicago and containing about 160 acres.....	160,000.00
Estimated total value.....	$1,909,415.00

The committee believed that by adding the value of the water power which would be developed, the suggested plan of financiering would be entirely practicable. *Illinois Senate Journal*, 1835–6, p. 101.

[3] *Laws of Illinois*, 1836, pp. 145–154.

[4] The Commission was composed of Gen. William F. Thornton, Col. Gurdon S. Hubbard, and Col. William B. Archer.

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became apparent to the commissioners that the magnitude of the undertaking had been generally underestimated. James M. Bucklin's estimate of $4,107,440.43 as the cost of a lake-fed canal, although at the time regarded by the friends of the project as excessive, was now found to be entirely too low for the construction of a canal of such dimensions as its place in a great system of waterways and its probable future traffic would demand.[1] Therefore, although the initial expense of the canal would be greatly increased, the commissioners determined, on the advice of the chief engineer, William Gooding,[2] to adopt the plan of a lake-fed canal sixty feet wide at the water level, thirty-six feet wide at the bottom, and having a minimum depth of six feet of water.[3] Governor Duncan also urged the larger canal.[4] The work was laid out in three divisions, known as the Summit division, the Middle division, and the Western division, and these were sub-divided into

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[1] Bucklin's estimate had been for a canal 45 feet wide at the water level, 30 feet wide at the bottom, and having a depth of four feet of water.

[2] As a former engineer on the Erie Canal, Gooding was aware that New York had made the mistake of constructing a canal inadequate to its rapidly growing traffic, and desired to prevent the same mistake being made by Illinois.

[3] *Report of the Board of Commissioners of the Illinois and Michigan Canal*, 1836, p. 8.

[4] Governor Duncan's inaugural address, *Illinois Senate Journal*, 1834–5, p. 26.

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sections of varying lengths.[1] Deeming it good policy to begin operations in the vicinity of Chicago, the commissioners, on June 6, 1836, contracted for the construction of a portion of the Summit division.[2] The intention had been to contract for the entire division, but, on account of the abnormally high prices of labor, provisions and supplies, the bids were almost uniformly above the estimates of the engineers, and on some of the sections the discrepancy between the estimates and the bids was so great that the commissioners refused to accept them.[3] It was hoped that the experience of the contractors whose bids were accepted would demonstrate the possibility of carrying on the work at the lower figures, and that, by the time they had the work under way, the prices

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[1] The seven miles of earth excavation from the Chicago River to the "Point of Oaks" were divided into half-mile sections. From that point to the termination of the Summit division there were twenty-four sections of thirty chains each.

[2] The act of January 9, 1836, required the commissioners to hold a sale of lots at Chicago on June 20, of that year, and it was naturally assumed that they would bring better prices if active preparations for the construction of the canal were being carried on in that vicinity.

[3] Laborer's wages were from twenty to thirty dollars a month and board. Pork at Chicago was from $20 to $30 a barrel; flour from $9 to $12; salt from $12 to $15; oats and potatoes, seventy-five cents a bushel; and other articles of consumption commanded similar prices. Davidson and Stuvé, *History of Illinois*, p. 479.

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of labor and materials would so decline that the remaining sections could be profitably taken at the estimates of the engineers, or even below them. But these hopes were doomed to disappointment. Some of those whose bids had been accepted found it necessary to abandon their undertakings, although such an act involved the forfeiture of a penal bond to the extent of five per cent of the amount of the original contract.[1]

The work of constructing the canal was formally begun with imposing ceremonies and a great celebration at Canalport on the Chicago River, July 4, 1836. But not much progress was made during the summer and autumn. Much of the time was consumed in preliminary preparations such as constructing roads across the marsh on the eastern sections, building houses for the laborers, and procuring machinery and other supplies.[2] Being desirous of extending the work as rapidly as possible, on October 20 the commissioners let the contracts for twelve sections on the Western division, including the steamboat basin at La Salle.[3] Preliminary operations were accordingly begun at the western extremity of the canal as well as on the Summit level. Owing to the scarcity of laborers and to the floods in the Des Plaines valley,

[1] *Report of the Board of Canal Commissioners*, 1836, pp. 10–11.

[2] *Report of the Board of Canal Commissioners*, 1838, p. 5.

[3] *Report of the Board of Canal Commissioners*, 1836, p. 11.

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however, little progress was made on either portion of the work during the autumn and winter months.[1]

The commissioners expected that the work would really begin on a large scale with the opening of the following season, but in this expectation they were disappointed. In the first place the continued scarcity of laborers along the line of the canal seriously retarded the progress of the work till well on toward the close of the summer, by which time they had begun to arrive in considerable numbers from the eastern states and Canada.[2] In the second place, a threatened change of the plan for the construction of the canal retarded the letting of further contracts, and, consequently, hindered preparations for pushing work on the central division and certain portions of the western division as soon as a sufficient force of laborers could be secured. The plan adopted by the commissioners was attacked by the House committee on Internal Improvements as entirely impracticable because beyond the financial ability of the state to accomplish. The committee claimed that the estimates of the engineers were untrustworthy

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[1] Engineer's report, *Illinois Senate Journal*, 1837, p. 28. With the hope of drawing laborers from the eastern states, to the Illinois and Michigan Canal, advertisements were inserted in the eastern papers offering wages of from $20 to $26 a month. *Niles' Register*, L, p. 388.

[2] *Report of Board of Canal Commissioners*, 1838, pp. 6-25.

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because, they had omitted entirely several important items of expense and had underestimated the cost of others.[1] By the estimates of the committee, the canal would cost $13,253,875.15, or nearly $4,600,000.00 more than had been anticipated.[2] The Committee proposed, therefore, that the "shallow cut" plan be adopted on the Summit level, and that the canal should terminate at Lake Joliet, slack water navigation being provided from that point by means of locks and dams in the Des Plaines River.[3] The result of the attack on the plan of the commissioners was the reorganization of the canal board and the appointment of Ben-

[1] The total cost, as estimated by the canal engineers, was $8,654,337.51. *The Seventh Annual Report of the Board of Canal Commissioners*, p. 73.

[2] The engineers had estimated earth excavation at $33\frac{85}{100}$ cents a cubic yard and stone excavation at $\$1.54\frac{8}{100}$. The committee estimated earth excavation at 40 cents a cubic yard; stone, one-third at $\$1.24\frac{8}{100}$, and two-thirds at $\$2.54\frac{8}{100}$. It also added $7\frac{1}{2}$ miles of slope wall, 18 foot cuttings, 129,885 perches, at $4.00 a perch, $519,540; a towing path 26 miles long, 12 feet wide and 8 feet deep, 488,106 yards, one-half stone at $1.25, and one-half earth at 25 cents per cubic yard, $366,083; and a guard lock at the junction of the deep cut with the Chicago River at a cost of $45,000. In addition to these items the Committee estimated the cost of contingencies and superintendence at $1,329,451.48; and improvement of five miles of the Chicago River at $16,565.75. For the entire argument of the Committee, see *Illinois House Journal*, 1836–7, pp. 326–347.

[3] For the plans on which it is now proposed to develop the lakes-to-the-gulf deep waterway, see p. 145 *et seq.*

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jamin Wright, of New York, as a special engineer to re-examine the route of the canal and give to the General Assembly an expert opinion on the relative feasibility of the two plans.[1] Wright's report, made October 23, 1837, strongly supported the plan adopted by the commissioners, and urgently recommended the completion of the work on that plan.[2] This report was accepted as remov-

[1] The new Board consisted of Gen. W. F. Thornton, Gen. Jacob Fry, and Col. J. A. McClernand. Under the act of March 2, 1837, the Board became elective by the General Assembly, and subject to its control, instead of receiving its appointment from the Governor and being subject to his control, as its predecessor had been.

[2] The following extract from Wright's report indicates his opinion of the importance of the work as planned by the Commissioners. "The Illinois and Michigan Canal, as now projected, and under construction, may truly be considered as one of the greatest and most important in its consequences of any work of any age or nation. In looking over this connection between the Lakes and the Mississippi River, it is no doubt superior in its advantages to any other which can ever be formed. It is the shortest artificial work, with the least lockage. The climate, soil and the capability of productions of the country which will be benefitted by the construction of this work, will certainly equal, if they do not exceed, any other part of the United States; and when I view it in this light, I think it justly merits to be executed upon the best and most permanent plan, and will justify by its revenue any outlay which may be put upon it in reason." *Report of the Board of Canal Commissioners*, 1838, p. 80.

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ing all doubt of the continuance of the work on the plan adopted.

The financial situation in the early part of the summer of 1837 tended to still further embarrass the activities of the commissioners and the progress of the work. The preceding year had been a successful one for the canal finances. Under the conditions established by the act of January 9, 1836, the canal bonds had become marketable securities. Governor Duncan easily negotiated the authorized loan in New York at a premium of five per cent.[1] The sales of lots had also resulted much more favorably than those of six years before.[2] The real estate market at Chicago had been extremely active for the past two years, and the prospect of the early construction of the canal gave it a still firmer tone.[3] Under the favorable market conditions, the commissioners were able to dispose of 375 lots in Chicago in June, 1836, at the total price of $1,355,755,[4] and three months later, Sept. 26, they sold at Ottawa seventy-eight lots for $21,358, an excess of more than $2,000

[1] At first he refused to sell more than $100,000 of the bonds on the terms offered, thinking five per cent too low a premium; but obtaining no better offer he sold the remaining $400,000 in 1837. *Illinois House Journal*, 1836–7, p. 15.

[2] The earlier sales had yielded only $18,924.83.

[3] Wright's *Chicago*, pp. 4–5.

[4] 415 lots were sold, but forty of them were forfeited by the failure of the purchasers to make the first payment. *Report of the Board of Canal Commissioners*, 1836, p. 12.

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above the appraised value. In accordance with the provisions of the act authorizing these sales, one-fourth of the proceeds and the interest on the remaining three-fourths were paid to the treasurer of the canal fund. With this sum together with the second installments which would fall due respectively in June and September, 1837, and with the proceeds of the loans which the Governor had been authorized to negotiate,[1] it was confidently expected that the work could be readily maintained during the year.[2]

The work of the season of 1837 had but fairly gotten under way, however, when the panic of that year swept over the state. As a means of self-protection the State Bank of Illinois suspended specie payments on May 24. At that time it held $390,834.89 of canal funds. Moreover, within the next month the second installment of the payments on the Chicago lots, amounting to some-

[1] By the act of March 2, 1837, the Governor had been authorized to negotiate a second loan for $500,000.

[2] On May 4, 1837, the treasurer of the canal fund reported the available funds for the work of the year as follows:

Cash in Branch Bank at Chicago....	$297,081.53
Loan to be negotiated by the Governor.....	500,000.00
Second installment of payments on Chicago and Ottawa lots.....	385,591.39
Total.....	$1,182,672.92

Report of the Treasurer of the Illinois and Michigan Canal, 1837 (Ill. Sen. Jour. 10 As. Spec. 1837, p. 24).

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thing like $375,000 would fall due, and unless other provision were made for the disposal of it, it would become a deposit in the Chicago branch of the State Bank. The situation presented a grave danger to the prosecution of the work on the canal. Under the law of Illinois, if the suspension of specie payments should continue for more than sixty days, the Bank would forfeit its charter.[1] Such an event would tie up the canal funds during an indefinite period of liquidation. On the other hand, if the Bank were forced to resume specie payments it would soon be drained of its specie and ultimately compelled to pay its creditors in depreciated currency. In the first case the work on the canal would have to stop until such time as the state could secure other funds with which to carry it on. In the second case, the cost to the state would be still further enhanced by the depreciation of the currency with which it would have to pay its creditors and the consequent higher prices it would be compelled to pay for the construction of the portions of the work not already under contract, to say nothing of the possibility of driving the contractors then at work into bankruptcy. After a careful canvass of the situation, Governor Duncan called the General Assembly in special session on July 10, and it legalized an indefinite suspension of specie payments.[2]

[1] Law of February 12, 1835, supplemented by an act of January 18, 1836.

[2] At the time of suspension the State Bank was indebted to the state as follows:

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By the autumn of 1837, however, work on the canal had assumed the proportions which the commissioners had anticipated several months earlier.[1] And, although the sudden increase of a transient population and the consequent enlarged demand for materials and provisions in an undeveloped region added materially to the financial burdens of the contractors, the work was carried forward with such vigor that at the close of Governor Duncan's administration in December, 1838, the entire line of the canal was under contract except about twenty-three miles of the Middle division between Dresden and Marseilles.[2] Several sec-

Capital stock held by state.....	$100,000.00
Agreement to pay Wiggins loan.....	100,000.00
State deposits held.....	388,669.51
Canal funds held in Chicago Branch.	285,834.89
Canal fund on N. Y. loan and premium.....	105,000.00
Total.....	$979,504.40

Governor Duncan's message, *Senate Journal*, Special Session, 1837, p. 9.

[1] The expenditures for work on the canal were $70,902.30 from December 1, 1836 to June 1, 1837. The expenditures for the year 1837 were $350,649.90. Evidently, more than $280,000.00 of this sum was expended after June 1.

[2] Enhanced prices of supplies resulting from the greatly increased demand and the difficulty of supplying machinery and tools with which to utilize to best advantage the greater labor supply proved so great a financial burden that several contractors were forced to abandon their contracts. In order to prevent

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tions of the Western division were completed and others far advanced.[1]

Henceforth, the greatest problem of the commissioners was that of supplying sufficient funds to enable the contractors to continue the work and maintain the labor that was available. The two loans authorized by the acts of January 9, 1836, and March 2, 1837, had yielded a revenue of $1,036,211.67.[2] Up to December 3, 1838, $444,292

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others from pursuing the same course, the commissioners established a store at Lockport from which they furnished to the contractors such supplies as were not obtainable in the region of the canal, and deducted the price of these supplies from the contractors' monthly estimates. The result was so satisfactory that no more contracts were abandoned, and those that had been given up were re-let to the contractors who had continued at work. *Report of the Board of Commissioners of the Illinois and Michigan Canal*, 1838, p. 6.

[1] Governor Duncan's message, December 4, 1838, *Illinois House Journal*, 1838–9; pp. 13–14.

[2] Each act authorized a loan of $500,000. The first loan was placed in two installments of $100,000, and $400,000 respectively, and at a premium of 5%. The second was placed at par. The proceeds of the two were as follows:

$500,000 at 5% premium	$525,000.00
500,000 at par	500,000.00
	$1,025,000.00
Interest on deposits	11,211.67
Aggregate proceeds	$1,036,211.67

Report of Board of Canal Commissioners, 1838, p. 53.

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had been received from the sale of canal lands and lots. Thus far the funds received from these sources had proven sufficient to maintain the work, but it was entirely evident that provision must be made soon for further available resources if the work was to continue. $1,434,838.02 had already been paid out for work done.[1] The funds in the treasury were diminishing and the monthly expenditures on the canal were rapidly increasing.[2] A loan of $4,000,000, bearing six per cent interest, was therefore authorized,[3] and Ex-Governor John Reynolds and Hon. R. M. Young, at that time a United States Senator, from Illinois, were appointed special agents of the state to negotiate the loan.[4]

In April, 1839, Mr. Reynolds negotiated two loans. The first for $300,000 was placed with John Delafield, President of the Phoenix Bank of New York. By the terms of this loan, however, it would not afford much financial aid to the work

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[1] *Report of the Board of the Canal Commissioners*, 1838, p. 61.

[2] The increase of expenditures is roughly indicated by the following statement of annual payments for work done on the canal:

1836	$ 39,260.58
1837	350,649.90
1838	911,902.40

[3] By act of February 23, 1839.

[4] The sales of Illinois and Michigan Canal bonds before 1840 were as follows:

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on the canal till late in the year.[1] The second gave more immediate results. It was for $1,000,000 and was placed with Thomas Dunlap, President of the United States Bank of Philadelphia.[2]

Date of act authorizing sale	Number and denomination of bonds	By whom and to whom sold	Total amount yielded
Jan. 9, 1836	500 bonds, $1000 each	Gov. Duncan to State Bank of Ill...	$525,000.00
Mar. 2, 1837	500 " $1000 "	Same.....	500,000.00
July 21, 1837	300 " $1000 "	Gen. Rawlings to J. Delafield, N.Y...	300,000.00
Feb. 23, 1839	1000 " £225 "	Rawlings and Reynolds to U.S. Bank. (Redeemable at London).....	976,396.67
Feb. 23, 1839	100 " £225 "	Gen. Thornton to different persons. (Redeemable at N. Y.)	100,000.00
Feb. 23, 1839	150 " £225 "	Wright & Co. under contract with Young and Reynolds. (Redeemable at London.)	145,188.00
Feb. 23, 1839	1000 " £225 "	Governor to contractors. (Latter to Magniac, Smith & Co., London, at 83.) Yield to state.....	1,075,000.00
Feb. 23, 1839	197 " $1000 "	Canal commissioners to contractors. (1841).....	197,000.00
Feb. 23, 1839	84 " $1000 " (48 redeemed)	Gen. Whiteside to Duffee & Co., 48 redeemed by Gov. Ford, leaving.....	36,000.00
Feb. 1, 1840	Checks on State Bank of Illinois bearing 6 per cent interest and payable when funds became available for that purpose.	Amount of issue..	409,448.70

[1] By terms of the contract, $50,000 was to be paid within fifteen days after the delivery of the bonds, another $50,000 on August 1st, and $50,000 on the first of each month from October to January inclusive.

[2] Governor Carlin's message, Dec. 10, 1839, *Illinois House Journal*, Special Session, 1839–40, p. 19. Also, Carlin's letter to Ford relative to the sale of bonds, etc., *Illinois Senate Reports*, 1842–3, p. 172.

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By agreement, the proceeds of this loan were paid in monthly installments of $100,000 each. This sum, however, was not sufficient to meet the demands on the canal funds. By the first of May the monthly expenditures had reached the neighborhood of $150,000, and on the first of June the canal funds showed a deficit of $208,000.[1] To meet this deficit Governor Carlin placed $500,000 of state bonds in the hands of Gen. W. F. Thornton, President of the Board of Canal Commissioners, for sale in the local market. Of these bonds, Gen. Thornton sold $100,000 in Chicago at a premium of one per cent, but was unable to dispose of the remainder on satisfactory terms.[2] Arrangements were therefore made with the State Bank of Illinois to furnish the state sufficient funds, supplementary to the installments from the United States Bank, to prevent the necessity of curtailment in the forces on the canal during the remainder of the year.

The most pressing and immediate needs having been provided for, Reynolds and Young endeavored to float the remainder of the authorized loan in London, but the condition of the money market made it impossible to sell the bonds at par.[3] After considerable negotiation, they placed $1,000,000 of sterling bonds drawing six per cent interest, with the brokerage firm of John Wright

[1] Governor Carlin's message, Dec. 10, 1839.

[2] *Ibid.*

[3] *Ibid.*

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& Co. for sale at a minimum of ninety-one per cent of par value, and with the understanding that these bonds should be replaced by others of like amount and rate but bearing interest payable semi-annually instead of annually.[1] On this deposit of bonds, Wright & Co. advanced 30,000 pounds which, by the terms of the contract, yielded the canal funds $145,188.[2] The firm, however, failed before the delivery of the new bonds, and no further funds were available from this source.

At the beginning of the year 1840 the canal treasury was once again in a depleted condition, and on the first of March the commissioners were forced to the expedient of issuing to the contractors checks bearing six per cent interest and payable at such time as the necessary funds should be provided.[3] An effort was made to replenish the treasury by a further sale of bonds, and in order to increase their marketability the act of February 1, 1840, directed the commissioners to sell enough lands and lots to pay the interest on the canal loans. But sales extending over a period from June 30 to July 13 yielded only $7,387.06, and this

[1] Carlin's letter to Ford relative to the sale of bonds, etc., in *Illinois Senate Reports*, 1842–3, p. 172. The semi-annual payment of interest was authorized by the act of Feb. 1, 1840.

[2] Message of Governor Carlin, Dec. 7, 1842, *Illinois Senate Reports*, 1842–3, p. 6.

[3] *Seventh Annual Report of the Canal Commissioners*, p. 112.

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sum was principally paid in Canal scrip.[1] Finding it impossible to continue the sale without such a reduction in the price of the land as would, in their judgment, prejudice the interests of the state, the commissioners abandoned the effort to raise funds by this means.[2] At this juncture the contractors held a meeting at Lockport and proposed to take $1,000,000 of the authorized bonds at par and bear the discount at which they would have to be sold.[3] The proposal was accepted and Gen. Thornton, on behalf of the purchasers, sold the bonds to Magniac, Smith & Co. of London, at a discount of fifteen per cent.[4] This act of the contractors made it possible to continue the work for several months longer, but with a somewhat diminished labor force.[5]

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[1] The sales amounted to $60,775.57, but by the provision of the act of February 1, 1840, only one-fourth of the purchase price of the timber land was payable in cash and the remainder in three annual installments, while only one-tenth of the price of the prairie land was payable at the time of the purchase and the remainder in twenty years. The deferred payments drew interest at the rate of six per cent.

[2] *Fifth Annual Report of the Canal Commissioners*, p. 9.

[3] Gen. W. F. Thornton, President of the Board of Canal Commissioners, and W. B. Ogden and George Barnett, contractors, were appointed a special committee to carry on the negotiations with Governor Carlin.

[4] *Seventh Annual Report of the Canal Commissioners*, p. 113.

[5] The amount paid for work in 1839 was $1,479,907.58; for 1840, $1,117,702.30; and for 1841, $644,875.94. Be-

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Although the canal treasury had again been drained of its funds by March 1, 1841, the contractors continued their work and their active preparations for the following season with the apparent hope that the General Assembly would be able to successfully solve the financial problem to which it had addressed itself throughout the winter. But the Legislators proved unequal to the task. The large sales of state bonds within the preceding decade had surfeited a depressed market with that particular kind of securities. This fact had been painfully evident for the past two years. It was likewise true that Illinois had done her part in bringing about this condition of affairs. In addition to the canal bonds the state had already placed upon the market, in her efforts to finance an elaborate scheme of internal improvements, evidences of indebtedness of more than $5,600,000.[1] It was with the greatest difficulty that the state was able to pay the interest on its debts on January 1, 1841. Under such circumstances a new loan could be floated only at an enormous discount. With property values

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tween March 1 and November 1, 1840, the payments were $832,888.20, and between November 1, 1840 and March 1, 1841 they were $280,940.46. *Seventh Annual Report of the Canal Commissioners*, pp. 65, 113.

[1] On December 7, 1842, the Internal Improvement debt was $5,614,196.94. As work on these improvements had been stopped in 1840, the debt had not increased much after that date. *Illinois State Reports*, 1842–3, p. 7.

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depressed and the people clamoring for reduced taxation, the General Assembly was unable to do more than to provide for an additional tax of ten cents on the $100 worth of property to be set apart exclusively as an "interest tax," establish a minimum taxable valuation of three dollars an acre on all lands subject to taxation in the state,[1] and authorize the sale of enough bonds at whatever they would bring in the market to meet the interest on the public debt for the next two years.[2]

The failure of the General Assembly to provide further means for the maintenance of the work was interpreted as the abandonment of the canal to its fate. As many of the contractors as were able to abandon their work without too heavy financial losses to themselves did so. Others continued for a time, but reduced their forces as rapidly as conditions would warrant. There were only two possible sources of payment to the contractors, namely, state bonds and warrants drawn against a future canal fund. Both of these methods were resorted to. Such contractors as were able to meet their own expenses and wait for their pay accepted the bonds until the depreciation

[1] By the act of February 21, 1841.

[2] In order to raise the necessary funds to pay the interest on the state debt July 1, 1841, $804,000 in interest bearing state bonds were hypothecated with Macallister and Stebbins of New York as a guarantee of a loan of $321,600. From this time on no more interest was paid on the state debt till the trustees took charge of the canal in 1845.

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became so great as to render this means of payment impracticable.[1] The alternative method of payment was introduced by the commissioners in May, 1841, in order to relieve the embarrassments of those contractors whose finances did not enable them to meet their accruing obligations. To the extent of the amount due them, the contractors were permitted to draw orders in favor of their creditors against the commissioners, which orders became negotiable after having been formally accepted and recorded by the Secretary of the Board.[2] For a time these orders served as currency along the canal. But, although receivable in payment for canal lands at the sale to be held in November, 1841, the issue soon exceeded the demand and depreciation began. Naturally, the depreciation of this medium of exchange soon put a stop to that method of payment and all work on the canal was at an end except in the case of a few contractors who were willing to bear their own burdens and await a better day for their compensation.[3]

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[1] $197,000 was paid in this way in the latter part of 1841 and early part of 1842. *Illinois Senate Reports*, 1842–3, pp. 16, 172.

[2] *Seventh Annual Report of the Commissioners of the Illinois and Michigan Canal*, p. 11[illegible].

[3] *Illinois Senate Reports*, 1842–3, p. 16. [illegible] February [illegible] 1843, [illegible] was made [illegible] payment of [illegible] [illegible] and [illegible] [illegible] canal [illegible]

After the failure of the State Bank in February, 1842, the financial affairs of the state seemed to be in a hopeless condition. The state debt was nearing the $14,000,000 mark, and was increasing at the rate of $830,000 a year from the one item of accumulating interest.[1] The credit of the state had sunk so low that in June its obligations sold at public auction in Chicago at from eighteen and one-fourth cents to twenty-four cents on the dollar, while the bills of the defunct State Bank brought thirty-eight and one-fourth cents.[2] There were not lacking those who openly advocated a policy of repudiation.

In this crisis, the canal seemed the only hope of the state.[3] A completed canal would aid the state finances both directly and indirectly. It would give direct aid by yielding a revenue which would offset a portion of the interest charges which the state was then unable to meet. Indirectly, it would bring larger revenues to the treasury by increasing the basis of taxation, first, through the

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they and the accrued interest should be charged against the fund of $230,000 appropriated for settlement with the contractors.

[1] On December 1, 1842, the debt amounted to $13,836,379.65, and the interest for the year was $830,182.77. *Illinois Senate Reports*, 1842–3, p. 7.

[2] *Chicago Democrat*, June 8, 1842.

[3] Report of the Senate Committee on Canal and Canal Lands, in *Illinois Senate Reports*, 1842–3, pp. 90–91; and Report of the House Committee on Finance, in *Illinois House Reports*, 1842–3, pp. 6–7.

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raising of property values by the capitalization of the diminution in transportation charges; and, secondly, by making the state a more attractive place for settlement and investment through this provision for lightening its financial burdens, which would tend to draw the population and capital that naurally shun a debt-ridden community with its exorbitant taxes. The increased land values resulting from the opening of the canal would also enable the state to materially diminish the burden of the debt by liquidating a large portion of it through the sale of canal lands. In short, the difference between a completed and an uncompleted canal meant the difference between a solvent and an insolvent state. These facts were clearly enough perceived,[1] and there was no lack of desire on the part of the state officials to bring the work to its final consummation, but that would involve an additional expenditure of more than $3,000,000, and in the insolvent condition of the state the raising of such a sum was clearly impossible.[2]

In this extremity the friends of the canal bethought them of the old "shallow cut" plan. It was estimated that $1,600,000 would suffice to complete the work on this plan, and it was deemed

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[1] *Illinois Senate Reports*, 1842–3, pp. 90–91.

[2] William Gooding, the chief engineer of the canal, estimated that the sum of $3,098,169.29 would be required to complete the work in accordance with the plan on which it was being constructed. *Seventh Annual Report of the Canal Commissioners*, p. 66.

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practicable to raise this sum on a pledge of the canal and the canal lands and revenues. The principal holders of canal bonds in New York also looked upon the plan as feasible.[1] Consequently, by the act of February 21, 1843, the Governor was authorized to negotiate a loan for the amount and to secure its payment by a deed of trust. The canal and all its property were to be turned over to three trustees, two of whom should be chosen by the subscribers to the new loan and one appointed by the Governor. These trustees were authorized to hold and manage the canal for the benefit of the creditors,[2] under such restrictions as would safeguard the interests of the state.[3]

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[1] Justin Butterfield of Chicago is said to have first suggested the plan to Arthur Bronson of New York, one of the large holders of canal bonds. Whether this statement be true or not, the friends of the canal eagerly took up the idea. In the summer of 1842, Michael Ryan, Chairman of the Committee on Canal and Canal Lands in the Illinois Senate, visited New York and discussed the plan with the leading bondholders, who took kindly to the idea.

[2] In the interest of the subscribers to the new loan the act directed the disbursement of the income of the canal, after the payment of the incidental expenses, as follows: first, interest on the loan; second, interest on other canal bonds held by subscribers to the loan; third, interest on canal bonds held by non-subscribing bond-holders; and fourth, payment of the principal of the loan.

[3] Among the important provisions of the act safeguarding the interests of the state were those limiting the conditions of the sale or lease of the lands, lots

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Governor Ford appointed Charles Oakley and Michael Ryan as agents to negotiate the new loan. Having first received assurances that the American creditors would subscribe their proportion, Oakley and Ryan hastened to Europe; but the foreign creditors were less inclined to take a favorable view of the proposed loan than those in America had been.[1] However, it was finally arranged that Abbott Lawrence, Thomas H. Ward, and William Sturgis of Boston should designate two competent men to examine the conditions of the work and report to the creditors the value of the property and the amount of debt, including accrued interest, charged against it. This service was performed by Ex-Governor John Davis of Massachusetts and Captain William H. Swift of the engineering corps of the United States Army. During the winter of 1843–4 these men made a personal investigation of the condition and the possibilities of the canal.[2] Their report to the creditors, dated March 1, 1844, was entirely confirmatory of the reports of Ryan and Oakley. They found that on

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and water-power of the canal. For the provisions of the act in full see *The Laws of Illinois*, 1843, pp. [illegible]

[1] The attitude of the European creditors in 1843 was fully set forth in a letter of [illegible] to Charles Oakley, [illegible] which was [illegible] published in the [illegible] [illegible] [illegible] [illegible] [illegible] published in the [illegible] [illegible]

[2] [illegible]

January 1, 1844, the total canal debt was $5,390,-697.57. Offsetting against this debt the sum of $150,209.83 redeemed and in the contingent fund, and $393,034.91 of securities held against canal lands sold, the net debt was found to be $4,847,-402.83.[1] On the side of assets the state could offer besides the canal 230,476 acres of land which Davis and Swift estimated would be worth ten dollars an acre at the completion of the canal, and 3,491 lots in the cities and towns of Chicago, Lockport, Ottawa and La Salle, valued at $1,900,000. The canal itself was considered to be worth $5,000,000. In addition to this $9,204,670 of physical property, it was estimated that the rentals for water power would aggregate from $75,000 to $100,000 a year, and that the tolls for the second year of the operation of the canal would reach $363,865.25.[2] In view of these facts the report recommended the acceptance of the loan as an entirely safe financial proposition.

The experience of European holders of American internal improvement bonds, however, had not been a pleasant one. For the most part they had

[1] *Davis and Swift's Report of the Illinois and Michigan Canal*, 1844, pp. 13–14. There are some slight discrepancies in the figures in the report, but they seem to be due to either clerical or typographical errors and do not affect its importance materially.

[2] *Davis and Swift's Report of the Illinois and Michigan Canal*, 1844, p. 42. This estimate of the earning capacity of the canal was far too high, as shown by the earnings when completed. The tolls for the second year of operation were $118,375.

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been unable to get interest on their bonds, and these were consequently greatly depreciated in value. But the holders of Illinois and Michigan Canal bonds were reassured by the correspondence of the report with the assertions of Ryan and Oakley and more particularly by the personal statements of Ex-Governor Davis, who visited London in the summer of 1844 on invitation of Baring Brothers & Company and Magniac, Jardine & Company, representing the creditors. As a result of the report and of these conferences, the European creditors agreed to take the full amount of the new bond issue apportioned to them on the basis of their holdings of the earlier issues,[1] provided the state would restore the interest tax which had been repealed in 1843.[2] The state readily complied with this very reasonable condition.[3] By the

[1] It was expected that the holders of earlier issues would subscribe to this one to the extent of thirty-two per cent of their holdings. This would enable them to register their old bonds under the act of February 21, 1843, thereby making them a sort of second mortgage on the canal and its property and revenues.

[2] *Illinois Senate Reports*, 1844, pp. 89–96.

[3] That the land owners were not all averse to such a tax is shown by the fact that on January 18, 1844, John Wentworth sent from Washington to the Governor of Illinois a petition from holders of Illinois land to the amount of nearly $1,000,000 asking that the property in the state be taxed to raise funds to pay the interest on the state debt, reasoning that an improvement in the financial condition of the state would react on property values. Wentworth's letter in the *Chicago Democrat*, January 31, 1844.

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act of March 1, 1845, provision was made for an interest tax of one and one-half mills on each dollar of property values.

In the meantime the creditors had subscribed the remainder of the loan and elected Captain Swift of Washington and David Leavitt of New York as trustees and the Governor had appointed General Jacob Fry as the State member. In June, these trustees assumed the trust and began active preparations for resuming the work on the canal. On June 21 they called for the first installment of the new loan to be paid on September 20 following.[1]

While awaiting the arrival of the funds with which to carry on the work, the necessary preparations for its resumption were under way. In accordance with estimates submitted by Charles B. Fisk and William Gooding, the former contractors were allotted the work on their old sections,[2] July 22, and on August 18 those sections not preëmpted by the former contractors were let to the "lowest responsible bidder."[3] These contracts evidenced the change in the economic condition of the region since 1836. In that year

[1] Captain Swift's *Report to the Creditors*, 1849, p. 5. Also *Chicago Democrat*, June 25, 1845.

[2] Section seventeen of the act of February 21, 1843, provided that on resumption of work on the canal former contractors should have priority of right in securing the contracts on their old sections, but on an estimate to be made by the chief engineer of the Board of Trustees.

[3] *Report of the Canal Trustees*, 1845, p. 3.

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the country generally was on the crest of the wave of prosperity. High prices prevailed. This condition was magnified in the region of the canal with its suddenly acquired population and its undeveloped resources, and the necessity of importing all needed supplies. In 1845 the country was slowly recovering from a period of industrial depression. Prices were relatively low. Food supplies were particularly cheap in the region of the canal, where they were now produced in abundance.[1] As a consequence, although the new estimates were far below the earlier ones, the trustees experienced no difficulty in finding contractors who would undertake the work at less than the estimated cost of completing it.[2]

After the period of abandonment, with the consequent deterioration of the unfinished work, considerable time was consumed in general repairs

[1] The following comparison of prices was made by Davis and Swift during their investigation of the canal:

	Cost in 1836	Cost in 1845
Labor of man per month, av.	$ 40.00	$16.00
Horses, each	100.00	60.00
Oxen, per yoke	80.00	45.00
Beef, per cwt.	6.00	3.00
Flour, per barrel	11.00	3.50
Pork, per barrel	22.00	8.00

Other articles had been proportionately reduced in price. *Report of the Illinois and Michigan Canal*, 1845, p. 103.

[2] Portions of the work estimated at $171,700 were let for $141,100, and feeder contracts estimated at $141,500 were let for $133,200. *Report of the Canal Trustees*, 1847, p. 26.

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and preparation for the resumption of the actual work of construction.[1] The act of February 21, 1843, required the completion of the canal within three years after it should be turned over to the trustees. In spite of delays caused by floods and by an unusual amount of sickness among the laborers, the work was completed in the allotted time and was opened for navigation in April, 1848.

For the next twenty-three years the efforts of the trustees were devoted to building up the traffic of the canal and to the payment of the canal debt. The expenditures on the work before it passed into the hands of the trustees amounted to $5,039,248.04, of which $4,674,637.23 had been paid for construction and $364,610.81 for contingent expenses.[2] The trustees expended $1,429,606.21[3] in completing the canal and constructing feeders to furnish the water supply, rendered necessary by the adoption of the "shallow cut plan" which raised the canal on the summit level twelve feet above the datum line of Lake Michigan.[4] But

[1] *Report of the Canal Trustees*, 1847, p. 26.

[2] *Eighth Annual Report of the Acting Commissioner of the Illinois and Michigan Canal*, p. 3. Cf. *Report of the Secretary of War*, 1887, Volume II, Part 3, pp. 2146–2148, which gives the expenditures by the commissioners as $5,133,062.21 and by the trustees as $1,424,619.29.

[3] *Final Report of the Trustees*, 1871, p. 9.

[4] Three feeders were constructed: (1) from the Fox River at Dayton to Ottawa; (2) from the Kankakee River to the Dresden level; (3) from the Calumet River through the "Sag" to the Summit level.

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these sums did not comprehend the entire canal debt.[1] Aside from the outstanding bonds to the amount of $5,383,000, the debt was composed of interest-bearing canal scrip, non-interest-bearing canal scrip, ninety day circulating checks, balances due to contractors, damages awarded for injuries sustained by the canal's crossing private property, and accumulated interest.[2]

The funds with which to meet the accruing interest on this debt and with which ultimately to liquidate the debt itself were gradually accumulated from the sales of lands, from tolls derived from the operation of the canal, from rents of lands and water-power, from interest on the canal funds when deposited with the banks, from interest on the unpaid installments on the lands sold, and from a few minor sources.[3]

The burden of the liquidation of the debt was increased, first, by the length of time which elapsed between the beginning of the work and the final payment of the bonds and accounts. The trustees paid $2,155,622.38 in the discharge of the arrears of interest on the registered bonds, and $2,457,

[1] *Final Report of the Trustees*, 1871, p. 9.

[2] *Eighth Annual Report of the Acting Commissioner of the Illinois and Michigan Canal*, pp. 7, 8.

[3] Some of these minor sources of income were, the sale of wood, timber and stone, the sale of old machinery and implements which the state acquired when it settled with contractors who were forced to abandon their work in 1842–3, the lease of lots, and the advantages occasionally derived from the course of exchange.

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276.46 may be charged to the operating expenses of the canal while used as a fiscal agent for the payment of the debt.[1] Secondly, the burden of the debt was increased by the monetary and banking conditions prevailing in the country during the period of the trust. Between 1848 and 1863, $14,563.52 was lost through "wild-cat currency," counterfeit bills, and bank failures, and between the former year and 1871 the sum of $370,864.42 was expended for premiums on gold with which to pay the interest and principal of canal bonds held abroad.[2]

By the close of April, 1871, the entire debt had been liquidated except $13,000 of the bonds which their holders had failed to present for payment.[3] On April 30, the trustees rendered their final report and the trust was dissolved, at which time they turned over to the state a cash balance of $95,742.41.[4] In the main, the finances had been

[1] *Final Report of the Canal Trustees*, 1871, p. 9.

[2] Prior to 1863 payments on bonds held in London had been made in New York at the rate of exchange at which the best bankers' bills on London could be purchased on the day of payment. This method sufficed so long as gold and paper had the same value in the money market. When the difference between them became material, payments were made in coin. Swift's *Report to the Creditors*, 1865, p. 7.

[3] These bonds are still outstanding and are carried in the Auditor's accounts as "called in by the Governor's proclamation and not surrendered." *Illinois Auditor's Report*, 1906, p. vii.

[4] *Final Report of the Canal Trustees*, 1871, p. 9.

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well managed during the continuance of the trust. $11,009,507.41 had passed through the hands of the trustees with no greater loss than the $14,563.52, which was lost through bad currency and banking conditions. On the other hand, the funds had been so managed as to yield $183,303.97 from interest and exchange.

In the end it was found that the anticipation with which the work was undertaken, namely, that the canal lands and revenues would pay the cost of construction, had been well founded. However, because of the length of the period covered by the work of construction and by the acquisition of the funds necessary to defray the expenses incident to the construction and the cost of management and maintenance, the total expenditures had been increased far beyond the expected sum.

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Chapter III

MANAGEMENT

The administrative organization for the management of the affairs of the canal has always been a simple one and in keeping with the organization and methods employed in the management of other state enterprises in Illinois. With a single brief exception, the direct management has been in the hands of a commission or board.[1] That exception was during the suspension of work on the canal between 1843 and the beginning of the trust in June, 1845. The management was then in the hands of one of the commissioners, known as the acting commissioner, assisted by the secretary, an engineer, and an agent for the protection of the canal lands and other property.[2] Prior to

[1] This statement ignores the period from the abolition of the board of commissioners by the act of March 1, 1833 till the creation of a new commission by the act of February 10, 1835, during which time there was no administrative machinery for the management of canal affairs. During this period the project was temporarily abandoned.

[2] The act of March 2, 1843 provided for the discharge of all officers and employees except these three. These were authorized to settle with the contractors, in so far as they could obtain the necessary funds, and to protect the canal property. *Laws of Illinois*, 1843, p. 62.

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this arrangement the board of commissioners had usually consisted of three men,[1] chosen biennially, part of the time by the Governor with the ratification of the Senate and the remainder of the time by the joint action of the two houses of the General Assembly.[2] During the continuance of the trust, the board of trustees consisted of two members elected biennially by the canal creditors and a third appointed by the Governor.[3] Since the termination of the trust in 1871, the three commissioners have been appointed by the Governor with the ratification of the Senate. The result has been that the appointments have usually been determined by party service or political expediency rather than by any special qualifications for the management of the canal. In politics and in law the commissioners are regarded as part of the state administration.[4]

[1] By the act of February 14, 1823, the number was established at five. The act of January 22, 1829, reduced it to three. The act of February 10, 1835, again provided for a board of five but that of March 2, 1837 again fixed the number at three and it has since remained that number.

[2] The members of the first board in 1823 were named in the act by which it was created. The act of March 2, 1837, placed the election of the commissioners in the hands of the General Assembly.

[3] The trustees who received the deed of trust were Captain William H. Swift of Washington and David Leavitt of New York, elected by the creditors at New York, May 27, 1845, and Jacob Fry, appointed by the Governor of Illinois, June 10, 1845.

[4] The legal status of the commissioners is determined by chapter 19, section 3, of the *Revised Statutes of Illinois*.

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From time to time special appointments have been made for special services, independent of the board of commissioners.[1] The most important of these special services was that of the sale of canal bonds during the period of construction. These sales were always conducted by the Governor or by special agents appointed by him. The boards of appraisers which determined the minimum selling price of each lot or tract of land, were appointed by the judge of the circuit court within whose jurisdiction the lot or tract lay.[2] In addition to these, it was a common occurrence for the General Assembly to appoint special commissions to investigate claims against the state growing out of the construction or management of the canal and for other specific services.[3]

The subordinate officials and employees of the canal have usually been appointed by the board or subject to its approval.[4] During the development of the project, the offices of secretary and treasurer were filled by members of the board and since 1873 the same policy has been pursued. But, from

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[1] *Laws of Illinois*, 1847, p. 23.

[2] Ibid., 23.

[3] As an example of such appointments may be mentioned the two agents appointed by joint vote of the General Assembly to protect the canal lands from trespass and to grant permits for residence on canal lands. *Laws of Illinois*, 1837, pp. 44–48.

[4] *Public Laws of Illinois*, 1871–2, p. 213; *Laws of Illinois*, 1891, p. 71; *Laws of Illinois*, 1899, p. 82.

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1837 to 1873 these officials were appointed by the board from outside its membership. Recently, the employees of the board have been the general superintendent, the chief clerk and paymaster, the land agent, the attorney, and a force of about twenty-five clerks, collectors of tolls, lock tenders, and repair men.[1]

The functions of the board have varied with the changing phases of the canal history. In the main, however, they have been rather narrowly restricted by legislative action. The General Assembly has not only assumed control of the general policy of the management, but it has occasionally, by legislative enactment, directed the action of the board in specific cases. But, in strictly administrative matters the board has usually been permitted to exercise discretionary powers. This has been particularly true in recent years. Within the restrictions laid by the General Assembly, the board has managed the contracts for construction and repairs, the canal finances other than the bond sales, and the sales and leases of canal lands and water power. It has fixed the rate of tolls and the condition under which the canal may be used, and has had general charge of the canal interests.

In the contracts for construction, due provision was made for the protection of the interests of the state. The contracts were let to the lowest re-

[1] A list of the officers and employees of the canal on November 30, 1915, together with their compensation, is given in appendix II.

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sponsible bidder only after the conditions under which they were to be performed had been widely advertised both in Illinois and in the eastern states, in order to secure the widest possible competition among contractors.[1] In the earlier of these contracts the contractors were required to give bond for the specific performance of their agreements. Later, the bond was not required, but fifteen per-cent of the amount due the contractors for work done was withheld till the completion of the work in accordance with the specifications in the contract.[2] Although several of the contractors lost heavily and some of them were compelled to relinquish their contracts, the amounts forfeited by such relinquishments usually reimbursed the state for the extra expense entailed by the necessity of making a new contract, frequently at a higher figure.

The financial management of the canal has generally been honest and reasonably efficient, but it has not always been above criticism from the standpoint of policy adopted or methods used. During the period of construction, the ever present financial problem led to the trial of unsound financial expedients, some of which have been discussed in the preceding chapter. The responsibility for these expedients rests partly with the board and partly with the General Assembly. The issuance of canal scrip is a case in point. As

[1] *Laws of Illinois*, 1835, p. 226; and, *Report of the Canal Trustees*, 1846, p. 3.

[2] *Report of Canal Commissioners*, 1836, p. 11.

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is usual in such cases, the scrip was overissued and consequently suffered a heavy depreciation, casting an undue burden upon the men least able to bear it, namely, the laborers.[1] The General Assembly which authorized such a course was not blameless, but the administration of the act lay with the commissioners. The act was rather permissive than mandatory and the amount of the issue was entirely within their control. It may be urged, however, in extenuation of the policy, that no other means was available at the time for continuing the work on the canal and that a suspension of operations would have been much more disastrous to the contractors and certainly so to all the laborers who could not readily find work elsewhere, than the depreciation of the scrip proved to be. Be that as it may, the inevitable result of the policy adopted was the practical reduction of the wages of the laborers and the development of a class of land speculators at the expense of the laboring men who were forced by the necessities of life to cash their scrip for whatever it would bring. Men with ready money were enabled to purchase scrip at a heavy discount and use it in payment for canal lots or lands at face value.

[1] The contractors were paid in scrip but they were able to pass it on to the laborers in payment of wages. The laborers either used it in making purchases of necessaries of life, the price of which was raised to cover the depreciation of the scrip, or it was sold to speculators for cash at a discount. In either case, the laborer bore the chief part of the burden of depreciation.

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If the board was led to dangerous lengths in the issue of canal scrip, it showed greater conservatism than its legislative master in meeting the problem of "wild-cat" money. During the suspension of specie payments following the panic of 1837 and again during the civil war, the canal revenues suffered much from the receipt of "uncurrent" money.[1] The act of July 21, 1837, required the canal commissioners to accept in payment of bills to the canal, the notes of either the State Bank of Illinois or the Bank of Illinois or those of any other bank whose notes were accepted and credited as cash by the bank where the canal funds were kept. While the losses to the canal from this source were probably proportionately no heavier than those of the average business firm, they became of considerable importance.[2] To relieve the treasury as much as possible from this evil, the trustees ordered that "specie funds only, or the equivalent thereof" should be received in payment of tolls.[3] The natural result was a nominal increase of earnings which practically offset the losses from the necessary acceptance of depreciated money. From 1860 to 1862 the tolls increased 95.34 per cent

[1] *Report of the Canal Trustees*, 1862, pp. 5–6.

[2] The actual loss sustained during the year 1861, in the conversion of notes into specie values was $2,225.53, but the board held deposits of canal funds to the amount of $32,605.40 on which it estimated there would be an average loss of 50 per cent. *Report of the Trustees of the Illinois and Michigan Canal*, 1862, p. 5.

[3] The resolution was adopted May 27, 1861.

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while the traffic for the same period increased 83.32 per cent.[1] The establishment of the national banking system and the enforced retirement of the circulation of all other banks, effectually removed the danger of losses from "uncurrent" money.

When the board of trustees made its final report on April 30, 1871, and turned the canal and its property back to the state, the financial sky seemed to be entirely clear. The canal debts were fully paid and a surplus of $95,742.41 was turned into the state treasury. This sum was regarded as but an earnest of the revenues to be derived from the operation of the canal. The problem of financial management for the future was assumed to be the simple one of collecting the revenues, paying the expenses of operation and repairs and turning over the surplus to the treasury of the state. As the revenue for the preceding ten years had exceeded the gross expenditures for the same period by $1,244,048, such an assumption seemed well founded.[2] The history of the succeeding years, however, did not give so much cause for optimism. In the succeeding decade, the tolls exceeded the expenditures by only $320,199 and the following decade showed a deficit of $211,039. In fact, the expenditures have exceeded the tolls regularly since 1879. During all these years up

[1] The statistics from which these percentages have been derived may be found in the appendix to any recent report of the canal commissioners.

[2] This sum does not include a small annual income from rentals, the amount of which is not obtainable.

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to 1903, the General Assembly made biennial appropriations from the state treasury to cover the deficits, under the guise of appropriations for the improvement of navigation. In 1903, it appropriated $152,950 to make needed repairs and to maintain the canal in navigable condition for the next biennium.[1] In the circuit court of Sangamon County, Richard E. Burke sought an injunction restraining the commissioners from using the appropriation, on the ground that it had been made in violation of the following provision of the constitution of 1870: "The general assembly shall never loan the credit of the state, or make appropriations from the treasury thereof, in aid of railroads or canals: Provided, that any surplus earnings of any canal may be appropriated for its enlargement or extension."[2] The case was carried

[1] The appropriation was made up of three items: $50,000 a year for the biennium for maintenance of the canal in navigable condition, $42,950 for the maintenance and operation of the pumping station at Bridgeport, and $10,000 for dredging the steamboat channel and basin at La Salle.

[2] The entire section is as follows: "The Illinois and Michigan Canal shall never be sold or leased until the specific proposition for the sale or lease thereof shall first have been submitted to a vote of the people of the state at a general election, and have been approved by a majority of all the votes polled at such election. The general assembly shall never loan the credit of the state, or make appropriations from the treasury thereof, in aid of railroads or canals: Provided, that any surplus earnings of any canal may be appropriated for its enlargement or extension."

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to the Supreme Court of Illinois, which held the appropriation violative of the above constitutional provision and therefore illegal.[1] Since then the commissioners have been compelled to maintain the canal by such expedients as have been at their disposal from year to year. To supplement the small earnings, tracts of real estate have been sold from time to time and portions of the expenses formerly charged against the canal funds have frequently been charged against the appropriations for the improvement of the Illinois river channel.[2] By these expedients the canal has been maintained in recent years. The lack of funds, however, has prevented the commissioners from making the necessary repairs and the efficiency of the canal as a transportation route has suffered accordingly. Much of the time, portions of the canal have been practically unnavigable for boats with anything like a standard load.[3] In fact, the

[1] In the case of Burke vs. Snively et al, the decision in the Supreme Court was handed down February 17, 1904 and is given in full, together with a dissenting opinion, in the *Illinois Reports*, Volume 208, pp. 328–363, and also, in the *Northeastern Reporter*, Volume 70, pp. 327–338.

[2] Since the completion of the locks at Henry and Copperas Creek on the Illinois River, the portion of the river from La Salle to Copperas Creek has been under the charge of the canal commissioners and is, to all intents and purposes, an extension of the canal to the latter point. The lock at Henry was opened in September 1871 and that at Copperas Creek in October, 1877.

[3] A canal boat bearing the standard load draws four feet and eight inches of water.

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upper section of the canal from Lockport to Chicago has been abandoned and the traffic transferred to the Drainage Canal.

Nearly allied to the financial administration, is the policy pursued in relation to the canal lands and water power. It has never been the policy of the state to retain permanently the ownership of any considerable portion of the 290,915 acres granted to it, aside from the ninety foot strip on each side of the canal. The sales of lots and lands in 1830 and 1836, however, convinced the commissioners that the only hope of obtaining any large part of the cost of the canal from the federal land grant, lay in the retention of the land by the state till the completion of the canal should have increased its value. Small sales of lots and of farm and timber lands were made occasionally, to meet the most urgent demands on the canal treasury. As a means of replenishing the treasury, however, the sales proved a failure. First, because the amounts sold were relatively small and, secondly, because the payments were made in installments, most of which did not fall due for several years after the date of sale. Land sales, even under the act of January 9, 1836, which required the payment of the purchase price in four equal annual installments, would not have met the pressing needs of the treasury, but succeeding laws rendered this method of raising needed funds, entirely ineffective. The act of February 26, 1839, provided that one-tenth of the purchase price should be paid on receipt of the

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certificate of purchase, but the remaining nine-tenths became due only at the expiration of twenty years from the date of sale.[1]

In the desperate state of the finances in 1840, the commissioners were directed to sell enough canal land each year to meet the interest on the canal debt.[2] The sales for the year, however, amounted to only $61,975.57 and for the following year, $88,598.38.[3] Since the land was sold under the provisions of the act of February 26, 1839, and since the canal debt was even then about $3,000,000 and rapidly increasing it was clearly evident that the interest could not be met by the sale of land unless at a price detrimental to the permanent financial welfare of the state. Moreover, the land could not be sold at lower prices, except on a revaluation by the appraisers.[4] This the commissioners did not desire. They preferred

[1] The commissioners were permitted to increase the proportion of the purchase price which should be paid at the time of purchase, by previously advertising the conditions of the sale. Little advantage seems to have been gained by this privilege. Many changes were later made in the conditions of sales, but it was not till 1869 that payment had to be made in cash at time of the purchase.

[2] *Laws of Illinois*, 1839–40, pp. 79–80.

[3] *Report of Canal Commissioners*, 1878, p. 47.

[4] No land or lot could be sold till after its value had been appraised by the board of appraisers, and none could be sold for less than its appraised value. The fluctuation of real estate values, especially in the cities, required frequent revaluations.

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to continue the policy of reserving the greater part of the land till the completion of the canal should have enhanced its value sufficiently to cover a large part of the canal debt. From July 1, 1841, the state suspended interest payments on its entire debt.[1] Had the commissioners pursued the policy authorized by the act of February 1, 1840, this event might have been delayed. It would not have been averted. On the other hand, the sale of a sufficient amount of the canal land to meet the interest charges on the canal debt would have so seriously weakened the resources of the canal that it is doubtful whether the creditors would have accepted the deed of trust on the canal and its property as a sufficient guarantee of the $1,600,000 loan necessary to the completion of the work. The policy of the commissioners may have permitted the state to be forced to a temporary suspension of interest payments, but it prepared the way for the completion of the canal and the ultimate extinguishment of the canal debt. Had the commissioners adopted the policy of forcing the land on the market, the abandonment of the canal and the ultimate financial ruin of the state would have been inevitable, and the repudiation of the state debt almost certain.[2]

Not only did the land policy pursued by the commissioners furnish the state a valuable asset

[1]Chapter II, page 52, note 2, above.

[2]Repudiation had already been seriously proposed by many people as the only possible means of freeing the state from an excessive burden of debt.

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in securing the necessary loan, but it proved an equally important one in the extinguishment of the canal debt. From the opening of the canal for traffic till the final settlement of the canal debt, the sales of lands and lots played an important part in furnishing the funds for the liquidation of the maturing financial obligations of the canal. In the summer of 1848 the trustees sold 45,625 acres of land and 2,244 lots. In the case of both lands and lots, the selling price exceeded the appraised valuations.[1] The spirited competition among the buyers forced the prices of many of the lots to double their appraisement.[2] In the first three years of the operation of the canal the sales of lots and lands amounted to $1,001,487,[3] while all the sales for the fifteen years preceding the beginning of the trust had aggregated only $1,152,064.79.[4] During the continuance of the trust from June 26, 1845 to April 30, 1871, the trustees disposed of lands and lots to the amount of $4,706,482.68.[5] After the extinguishment of the canal

[1]The lands sold were appraised at $208,021 and sold for $210,775. The appraised value of the lots was $505,124 and the selling price, $554,864.

[2]The *Chicago Daily Democrat*, September 26, 1848. This issue of the *Democrat* quotes at length from the *Ottawa Free Trader* concerning the sale of lots in that city. The *Free Trader* estimates that the sales of lots in Ottawa had exceeded $130,000.

[3]*Swift's Report to the Canal Creditors*, 1850, p. 9.

[4]*Report of the Secretary of War*, 1887, Volume II, Part 3, p. 2147.

[5]*Final Report of the Canal Trustees*, 1871, p. 9.

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debt, the sales proceeded more slowly. Between April 30, 1871, and December 1, 1878, they yielded $27,492.21 to the canal funds, but in the succeeding seven years, ending December 1, 1885, the total receipts from this source were only $6,668.28.[1] From that time, the sales were of little consequence till the decline of other sources of revenue in recent years compelled the canal management to resort to this method of replenishing the treasury. In the meantime, the advance in the value of city lots, which compose most of the real estate values held by the canal, has been sufficient to leave the value of the present holdings about the same as those of 1885.[2] The estimated value at that time was $166,023.59. In 1907, it was $168,878.59. Since 1898, there had been a decrease of $18,969.41 in the value of lands and lots held, but, during the same period the sales amounted to $79,187.73.[3]

The early management of the canal lands was of such a character that at the conclusion of the

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[1] *Report of the Secretary of War*, 1887, Volume II, part 3, pp. 2147–2148.

[2] Of the estimated values for each year since 1885, only $360.59 has been assigned to the tracts of land as follows:

Two very small islands	$10.00
Two tracts of land aggregating 15.34 acres	350.59
	$360.59

[3] The decrease in value since 1898 and the amount of sales for the same period have been computed from the annual reports of the canal commissioners.

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trust in 1871, sufficient funds had been derived from their sales to cancel $5,858,547.47 of the $6,557,681.50 which the canal originally cost, exclusive of interest charges, exchanges, and other similar items. Since the payment of the original canal debt, more than $100,000 has been received from the sales of lots and lands, in addition to the rentals, which have varied from year to year.

The management of the canal was liberal toward the purchasers of canal land. Although the law provided for the forfeiture of lands and lots if the purchaser failed to meet his payments of principal or interest when due, it also made the certificates of purchase negotiable and transferable either by endorsement or by a separate instrument. These provisions not being sufficient for the relief of purchasers who had bought lands or lots at the inflated prices preceding the panic of 1837, the act of February 27, 1841, made special provision for this class of debtors.[1] The debtor was permitted to select such part of his purchase as the payments made would buy after deducting one-third from the original purchase price. On relinquishment of the remainder, his remaining obligations to the State were cancelled.[2] The State

[1] *Laws of Illinois*, 1841, pp. 49-51.

[2] In the case of farm or timber lands all divisions were to be made on the basis of the government survey divisions. In case of city lots, such division was required as would leave to the state proportionately as much frontage as to the purchaser.

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went even further in its liberality and passed numerous special acts for the relief of individuals who for one reason or another, did not come within the purview of the general enactments.[1] It also enabled men to secure choice tracts of land by permitting them to occupy and improve the tracts before they were offered for sale. By payment of rent to the state these men were able to hold the land till it was put upon the market when they were usually able to secure it at the valuation of the appraisers. For the protection of the State and the bona fide settlers against the land grabber and speculator the limit of the privilege of holding land was restricted to six hundred and forty acres.[2]

An effort was also made by the canal management to assist in attracting to the canal region a desirable class of settlers by promoting the community life of the villages and towns along the canal, by aiding the social and moral uplift of the community through provision for public education and religious instruction.[3] In pursuance of this policy lots were granted for public buildings, such as court houses, schools, and churches. Liberal

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[1]Examples of such acts are those of February 25, 1845 and numerous others.

[2]*Laws of Illinois*, 1837, p. 45.

[3]Henry Brown, a historian of Chicago, is authority for the statement that the canal commissioners gave twenty-five lots to Chicago to aid in the erection of public buildings. Brown's *Present and Future Prospects of Chicago*, p. 5.

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concessions were made in the matter of the location of the lots and in the manner of using them.[1]

In addition to the rental of unsold lands, it has been part of the policy of the management to grant twenty-year leases for the use of such parts of the ninety-foot strips as are favorably situated for the location of ware-houses, elevators, or other business establishments.[2] The same policy is pursued relative to the water power developed at various places along the canal from Lockport to La Salle. These leases of water power have been of especial importance at Lockport, Joliet, and Ottawa. The water power lease at Lockport was of less financial importance directly than indirectly, however. The Norton Mills at that place derived their power from the canal but they also transported much of their wheat and flour on it. For several years the wheat carried from Chicago to these mills and the flour and millstuffs returned

[1]Churches were permitted to sell part or all of the lots donated, provided the funds received from the sale should be expended in the erection of a church building or in securing a more desirable site.

[2]On taking control of the canal, the trustees adopted the policy of charging rentals for the use of canal property. The act of February 21, 1843 prohibited the sale of lands or water power till three months after the canal was opened for operation, but the act of February 25, 1847 removed the restriction and left the matter to the discretion of the trustees, with the one restriction that not more than one tenth of the canal lots or lands in any one city or town could be sold till after the completion of the canal.

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constituted a large part of the traffic on the upper section of the canal.[1] In addition to Norton and Company, among the more prominent of the lessees of recent years have been the Economy Light and Power Company and the Great Western Cereal Company of Joliet, and the Ottawa Hydraulic Company, and the Northern Illinois Light and Traction Company of Ottawa. Many other corporations, firms, and individuals derive power from the same source, or pay rentals for the occupation of portions of the ninety-foot strip.

The opening of the Chicago Drainage Canal materially increased the rentals from water power by largely augmenting the flow over the state dam where the Illinois and Michigan Canal crosses the Des Plaines River in the city of Joliet. The increased rentals from water power have about counterbalanced the decrease of those from the ninety-foot strip, which have declined with the decline of the traffic on the canal.[2]

To these rentals should be added the receipts from the ice leases and from water pipe and sprinkling

[1] Of the 38,820 tons of freight carried on the canal in 1905, there were 335,334 bushels of wheat shipped from Chicago and 6,163,444 pounds of flour and 2,340,927 pounds of millstuffs received. Practically all of this business was produced by the Lockport mills. However, the upper section of the canal, extending from Lockport to Chicago, has since been closed to traffic and all canal traffic between these two points is now carried on the Drainage Canal.

[2] For the last eighteen years, the earnings from these two sources have been as follows:

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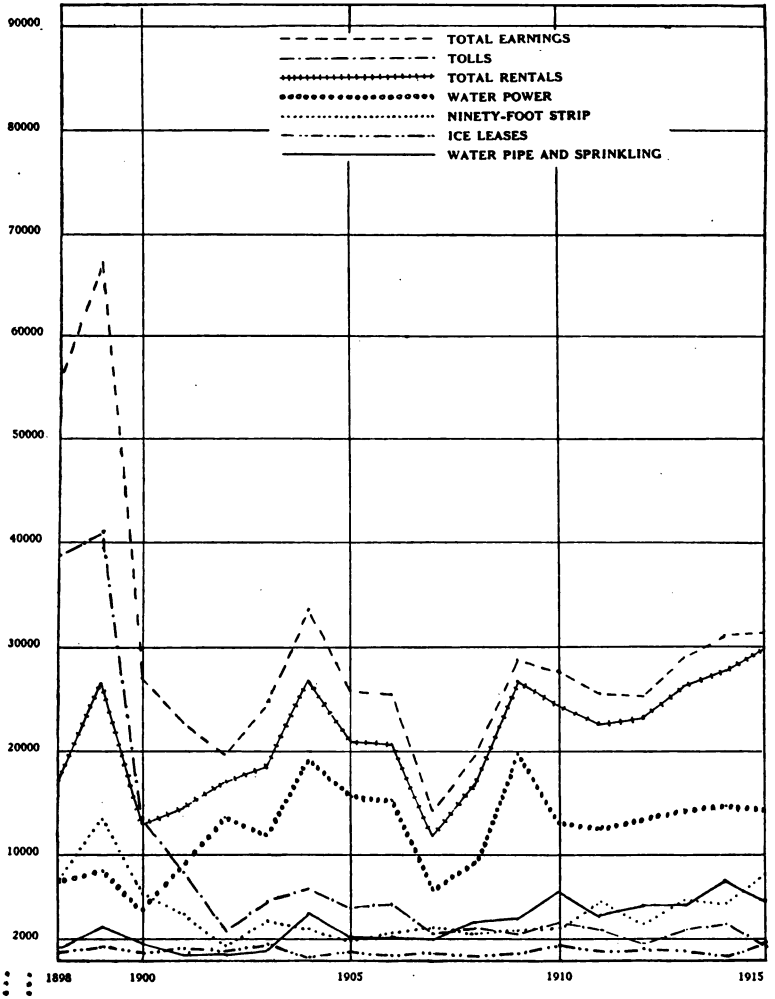
RECEIPTS OF THE ILLINOIS AND MICHIGAN CANAL
1898-1915



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privileges and miscellaneous items, which have recently aggregated several hundred dollars a year.[1] In the last eighteen years the earnings from rentals, leases, and privileges, have been $333,511, while the tolls for the same period amounted to only $150,433.

The state has never attempted to transport passengers or freight. It has furnished the route and left the work of transportation to individuals and corporations. On the opening of the canal, the commissioners fixed the rate of tolls to be paid by the owners of vessels for the privilege of using the canal. These tolls were made up of two sepa-

Year	90 foot strip	Water power	Both
1898	$7,726.93	$7,572.70	$15,299.63
1899	13,627.00	8,108.50	21,735.50
1900	6,141.00	4,704.87	10,845.87
1901	4,175.00	9,068.22	13,243.22
1902	1,550.00	13,857.69	15,407.69
1903	3,790.75	11,911.82	15,702.57
1904	3,001.33	18,988.87	21,990.20
1905	1,959.00	15,936.47	17,895.47
1906	2,399.00	15,337.59	17,736.59
1907	2,957.00	6,413.84	9,370.84
1908	2,370.40	9,288.43	12,658.83
1909	2,529.20	19,666.06	22,195.26
1910	3,272.20	13,050.75	16,322.95
1911	5,479.56	12,196.30	17,675.86
1912	3,258.60	13,541.74	16,800.34
1913	5,781.20	14,150.00	19,931.20
1914	5,386.20	14,510.00	19,896.20
1915	8,066.33	14,110.00	22,176.33

[1]These receipts have been:

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rate charges. First, a charge per mile for each boat or barge. Second, a charge per mile for each thousand pounds of freight or for each passenger carried.[1] The same method of estimating the charges for the use of the canal has been continued down to the present time, but the rates have been reduced from time to time in an effort to withstand the increasing competition of the railways. Notwithstanding the reductions in canal charges, the traffic has gone more and more to the railroads till for the year ending November 30, 1905, the total amount of freight transported

Year	Ice leases	Water pipe and sprinkling privileges and miscellaneous	Both
1898	$ 856.00	$1,236.21	$2,092.21
1899	1,257.00	3,211.48	4,468.48
1900	767.00	1,670.50	2,437.50
1901	1,077.00	193.50	1,270.50
1902	1,057.00	553.00	1,610.00
1903	1,772.00	1,022.15	2,794.15
1904	300.00	4,372.90	4,672.90
1905	987.00	2,102.34	3,089.34
1906	371.00	2,327.31	2,698.31
1907	585.00	1,977.95	2,562.95
1908	311.00	3,467.81	3,778.81
1909	526.00	3,879.58	4,405.58
1910	1,455.00	6,364.40	7,819.40
1911	846.50	4,175.16	5,021.66
1912	1,095.50	5,351.19	6,446.69
1913	901.50	5,240.17	6,141.67
1914	355.50	7,452.46	7,807.96
1915	1,786.50	5,821.88	7,608.38

[1]The list of tolls adopted in 1848 may be found in appendix III.

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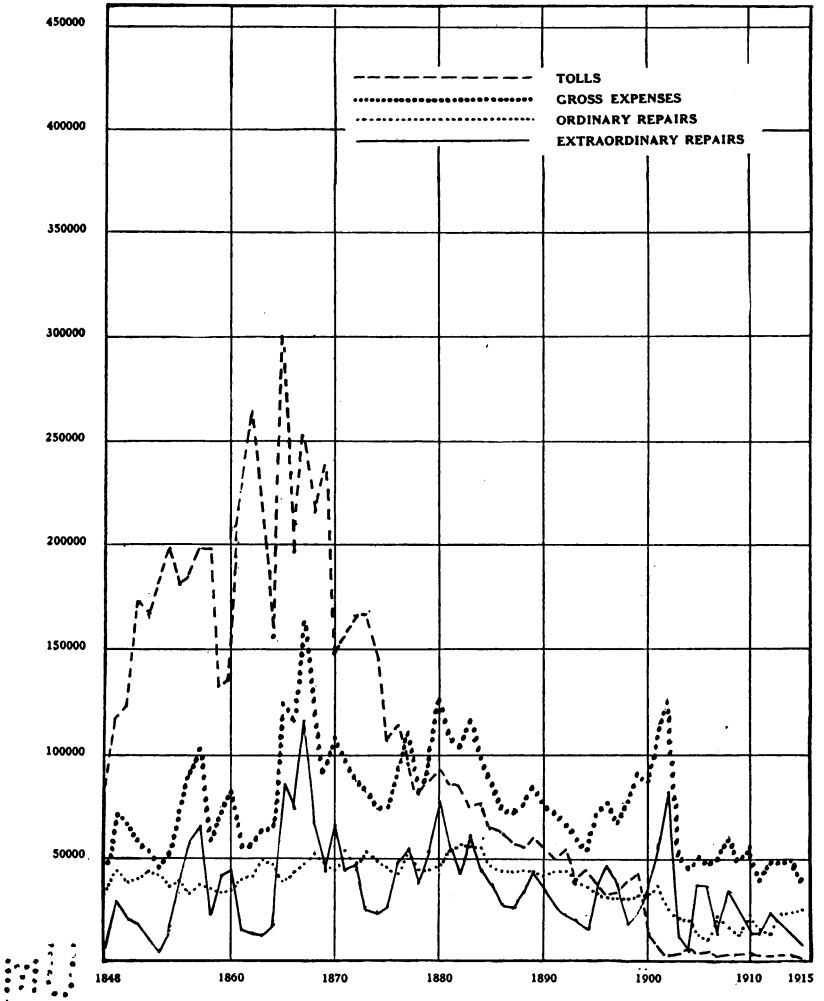
TOLLS AND EXPENDITURES ON THE ILLINOIS AND MICHIGAN CANAL, 1848-1915



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on the canal was only 38,820 tons against 1,011,287 tons in 1882. In 1915 the tonnage had increased to 358,550 tons but the tolls had decreased, due to the character of the freight handled and to the fact that no tolls can be charged for the traffic on the Drainage Canal portion of the route. For 1905 the tolls, including those collected at the locks at Henry and Copperas Creek on the Illinois River, amounted to only $4,950 and the gross expenditures were $50,890.[1] In 1915 the tolls were $1,336, and the expenditures were $35,756. For the decline in tonnage and tolls, the management is only partially responsible. The railroads have taken the business from the canal partly because of the advantages offered by the great railway systems with their methods of prorating of freights and interchange of cars and partly because of the fact that the railroads are managed by capable men, thoroughly familiar with the transportation business, while the canal is managed by men appointed because of the political influence back of them, rather than because of their familiarity with transportation problems.

Although politics played a more or less important part in the management of the canal from the beginning, it has been a more pronounced element in the determination of appointments in recent years than formerly. For many years practically all the appointments have been determined by

[1]The tolls, expenditures, and tonnage of the Illinois and Michigan Canal to the close of 1915 are to be found in appendix I.

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political affiliations.[1] The efficiency of the canal administration necessarily suffered. Two instances which have come to public knowledge within recent years exhibit this phase of the later management.[2] In the investigation of the dam-

[1]The insecurity of tenure is illustrated by the changes which occurred in the personnel of the canal force between February 15 and March 15, 1897 when every man on the pay roll with a single exception was changed. The changes were somewhat more sweeping in this case than usual because the state administration was passing from the control of one party to that of its opponent, but the principle holds true generally that the employees must affiliate with the political faction in power.

[2]The one scandal connected with the earlier history of the canal grew out of the failure of the canal officials to properly cancel or destroy the redeemed scrip. By reason of this failure the state came near losing $200,000 through the redemption of a portion of it a second time, and the fair name of Ex-Governor Mattison was brought under suspicion. The scrip in question was issued in 1840 and mostly redeemed within a few months. After remaining in the Chicago branch of the Illinois State Bank and at the canal office till 1853, it was transferred to Springfield in a trunk and a shoe box and placed in the basement of the capitol building. In 1857 Governor Mattison presented for redemption scrip which with the accumulated interest amounted to about $200,000. In 1859, after an investigation, a senate committee and the grand jury of Sangamon County failed to hold Mattison culpable. He reimbursed the state, but his friends claimed that he did so to prevent financial loss arising under his administration and that the scrip presented had come into his hands through

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ages which would be sustained by the canal property from the construction of the Chicago Drainage Canal, it was discovered that for many years squatters had held several tracts of canal land which had been entirely lost sight of by the canal management. It was further discovered that among the forgotten files of the canal office were unrecorded deeds to several lots and parcels of land in the city of Joliet.[1] The same failure to conserve the best interests of the state in the management of the canal affairs came to light in the legislative investigations of the "Dresden Heights dam lease," in the month of November, 1907. According to the evidence there presented, the canal officials entered into a sale and lease of state property to a private corporation, seemingly without any definite knowledge of the value of the rights conveyed.[2] The consideration was $2,200 and the value of the rights conveyed

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legitimate business transactions. Cancellation or destruction of the scrip as redeemed would have prevented the unfortunate affair.

[1] *Report of the Canal Commissioners*, 1897, pp. 9–11.

[2] The report of the testimony given before the legislative investigating committee was published daily in the *Chicago Record Herald* during the progress of the investigation, beginning November 20, 1907. The lease was made to Harold F. Griswold who transferred it to the Economy Light and Power Company. By a joint resolution which passed both houses on November 27, 1907, the General Assembly directed the Canal Commissioners to cancel the lease. *Laws of Illinois*, Adjourned Session, 1907–1908, pp. 101–102.

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has been variously estimated at from $5,000,000 to $15,000,000.[1] Even assuming that the lowest of these estimates greatly exceeds the real value of these rights, it would appear that the canal officials permitted themselves to be drawn into a contract by which the state would not receive compensation commensurate with the rights conveyed. These instances are sufficient to indicate a type of management which is certainly not above criticism.

Although in recent years the canal has been compelled to carry the incubus of the spoils politician, it has not, on the whole, suffered more from this source than the state penal and charitable insitutions did before they were placed under the civil service system. The character and efficiency of the management has varied at different times and with different boards. As a rule, however, it was more efficient when the canal was an important commercial route than it has been since the traffic has largely gone to the railroads. Since the canal has ceased to be of much consequence as a transportation agency, the public has ceased to exercise the watchfulness, born of personal interest, which compelled a reasonable degree of efficiency in its earlier management. The history

[1]The entire deal consisted of three parts. First, a lease of flowage rights in the Des Plaines River, consideration $2,200. Second, the right to place a line of poles for the purpose of stringing electric wires along the ninety-foot strip. Third, the purchase of a small tract of land lying between the canal and the river bank, consideration $500.

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of the canal has demonstrated once again the oft-demonstrated facts that, in the long run, an intelligent public interest is essential to the successful conduct of a public business and that there is no necessary correspondence between the ability of a political appointee to obtain an appointment and his ability to successfully perform the duties which attach to the position obtained. There can be little doubt that a greater care exercised in the selection of the canal commissioners and a well organized civil service based on the merit system and strictly applied in the selection of all officers and employees, would have added to the efficiency of the canal management. The tasks to be performed demanded men of large ability, special skill, and unswerving integrity. The system employed in the selection of men and the distribution of powers and responsibilities has not always insured the highest type of management.

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Chapter IV

ECONOMIC INFLUENCE

Before the canal was opened for traffic its local influence in the development of the region through which it passes had been distinctly marked. After its opening it wielded a larger influence, not only locally, but over a wider range of territory, by means of the added facilities which it furnished as a transportation route before the era of railroads, giving access to otherwise closed markets. Since the era of railroad building began in the middle West, it has also served as a freight-rate regulator at all competitive points. In the performance of these services, however, it has been handicapped first, by the conditions of the Illinois River, which together with the canal, completes the waterway from Lake Michigan to the Mississippi; secondly, by the character and conditions of the railroad competition; and, thirdly, to a less extent, by the character of the canal management. The influence exerted by the canal may be divided logically and chronologically into three periods. The first period was during the development of the project and the construction of the canal. The second period was comprised in the six years from the beginning of the traffic on the canal in 1848 to the opening of the Chicago and Rock Island Rail-

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road from Chicago to the Mississippi River in 1854. The third period consists of the years of competition for traffic between the canal and the railroads.

During the years of projection and construction of the canal the wealth and population of the canal region grew apace. In 1829 when the Canal Commissioners laid out the towns of Chicago and Ottawa, Peoria was a small pioneer outpost on the extreme northern frontier of the settled portion of Illinois.[1] Beyond it, far removed from any immediate connection with the remainder of the state, and separated by wide stretches of country traversed only by the red man and a few traders, lay a small settlement at the mouth of the Chicago River and another at Galena in the lead mining district on the upper Mississippi.[2]

Between 1830 and 1835 the increasing probability of the early construction of the canal and the widely disseminated opinion that its completion would greatly increase the value of all the land within a reasonable distance of the route and

[1]There were but few settlers north of Fulton County in the "Military Tract," or north of the Sangamon River east of the Illinois.

[2]The entire population in the vicinity of the present city of Chicago, including white families, half-breeds and three or four French traders, did not exceed one hundred. The poll-book used at an election held in the precinct of Chicago, Peoria County, August 2, 1830, contains thirty-two names. Not all of these voters lived at the village of Chicago. Cf. Wentworth's lecture before the Chicago Historical Society, in the *Fergus Historical Series*, No. 7, p. 16.

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develop the proposed cities and villages along its course, led to a steadily increasing demand for farms and town lots along the line of the projected waterway. This movement, slow at first, was accelerated as it became increasingly apparent that the construction would not be long delayed. By the beginning of the actual work of construction in 1836, real estate speculation had become the chief occupation in the canal region. Shrewd business men perceived that Chicago would necessarily become the transfer point for all passengers and commerce passing between the Great Lakes and the canal and that it was destined to be the emporium of western trade.[1] A realization of these facts made the canal region, and particularly Chicago, a favorite place for the exercise of the speculative mania that swept over the country just prior to the panic of 1837. Accordingly, real estate values advanced by leaps and bounds.[2] In 1830, one hundred and twenty-six lots sold in Chicago at prices varying from twenty-four to one hundred and thirty dollars each, but averaging about thirty-five dollars. Eighty acres of land,

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[1]As originally laid out in 1830, the town of Chicago comprised the territory between the present streets of State and Halsted, and Kinzie and Madison, the junction of the north and south forks of the Chicago river falling within the limits of the town. James Thompson of St. Louis was surveyor for the Commissioners. His plat and compass are owned by the Chicago Historical Society.

[2]Andreas, *History of Chicago*, I, p. 115.

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The original Town of Chicago, the eastern terminus of the Canal, as surveyed by James Thompson by order of the Commissioners. His plat showing purchasers of lots, filed August 4, 1830. "The Forks," not the Public Square, was the center of population at this time.

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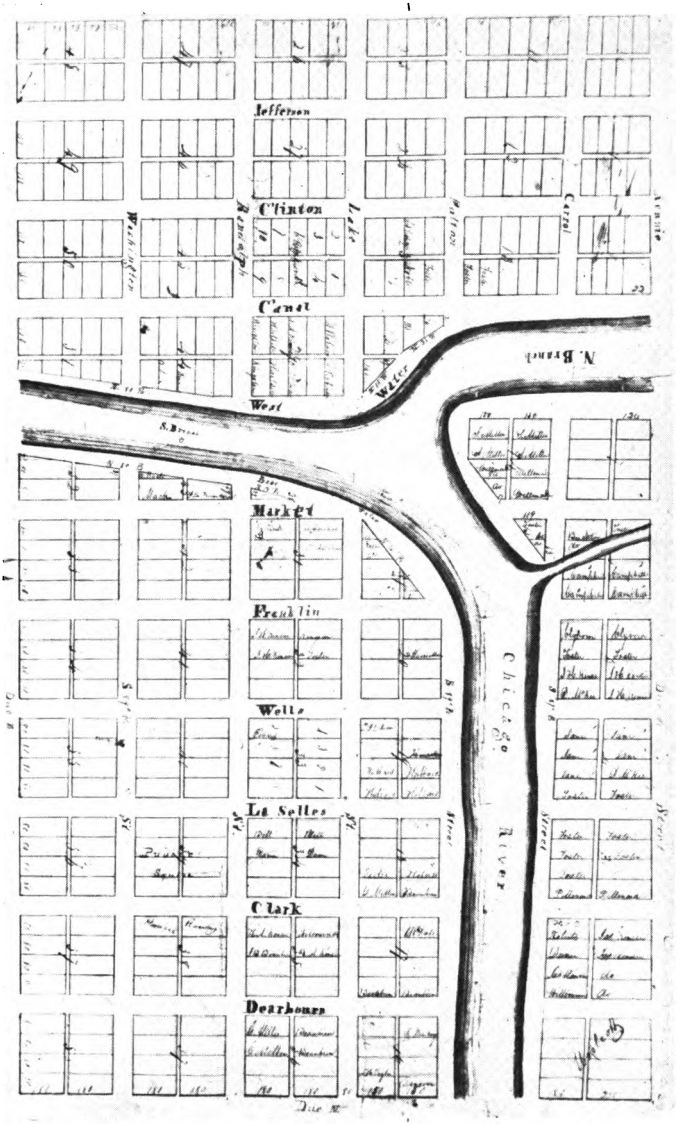
WEST



EAST

THE "CANAL TOWN" OF CHICAGO
James Thompson, Surveyor

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now in the heart of the city, brought $1.55 an acre.[1] Four years later, lots on South Water street, then the chief business street of the city, sold for $3,500 each.[2] A tract of forty acres of land, now included in Butler, Wright, and Webster's addition, was purchased on January 2, 1835, for $4,000. On April 10 following it was sold for $10,000.[3] The active preparation for the actual beginning of the work only led to still wilder speculation, till the mania was checked by the panic.

The rise and decline in real estate values in other towns along the canal were less phenomenal and spectacular but otherwise very similar to those at Chicago. The growth of the towns was slower and the speculative spirit less rampant. Consequently, the real estate prices were not subject to such violent fluctuations. At Ottawa, in 1830, the Canal Commissioners sold nine lots at an average price of twenty dollars each. In 1836, they sold seventy-eight at an average price of $273.85.[4] In other canal towns the increase in values followed about the same course as at Ottawa.

As was to be expected from the inflated real estate values, the reaction produced by the panic of 1837 was particularly violent in Chicago. For several years after the panic, periods of inflated prices were succeeded by periods of depression. Some of these variations took a wide range. The

[1] Andreas, *History of Chicago*, I, p. 115.

[2] Wright, *Chicago, Past, Present, Future*, pp. 4–6.

[3] Ibid., p. 6.

[4] *Report of the Canal Commissioners*, 1878, p. 44.

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high prices of 1843 were followed by the heavy decline in 1845. In the latter year, thirteen canal lots which had been forfeited by their former purchasers, were sold for $8,622. These same lots had formerly been appraised at $49,430. In the same year, a syndicate of canal creditors accepted at an appraisement of $30,210, lots and tracts which had brought $94,405 in October, 1843.[1] However, in each period of inflation the prices usually rose higher than in the preceding.

Such a field for speculation could not fail to attract population and investments. But not all the investments were of a speculative character. Much of the demand for farms and town lots came from those who turned their faces toward the canal region to make it their future home. To be sure, the increasing demands for farms and business locations and the estimates placed upon the future enlargement of those demands formed the basis for the speculation which from time to time placed abnormal valuations on the choice tracts of land and business situations. But the general upward trend of real estate values throughout the period depended on a steadily growing population and industry.

The entire population included in the territory extending from Peoria to Wisconsin on the north and Indiana on the east, was 1310 in 1830.[2] By 1835, Cook and La Salle counties had been created along the line of the proposed canal, the former having a population of 9,826 and the latter of

[1] Report of the Canal Commissioners, 1878, p. 49.
[2] *Twelfth Census*, Population I, Part I, p. 16.

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4,754. The river section of the route, lying between the proposed western terminus of the canal and Peoria, was comprised in Putnam and Peoria counties with a combined population of 7,241,[1] a net gain of 20,511 in the region of the proposed waterway in five years. In the next five years the population of this region rose to 46,451 and in 1850, it had reached 125,708. The population of Chicago grew from 4,470 in 1840 to 12,088 in 1845 and 28,269 in 1850.[2] It was in the neighborhood of 20,000 at the opening of the canal for traffic.[3] The economic development of the region is further shown by the rapidity with which the land passed from public to private ownership. Of the 3,626,536 acres of public land in the Chicago land district on May 29, 1835, 2,780,640 acres had been sold to individual purchasers by November 1, 1847.[4]

[1] *Illinois House Journal*, 9th General Assembly, 2nd Session, p. 86, gives the state census by counties in 1835.

[2] *Senate Executive Document*, No. 16, 34th Cong., 3rd Sess., pp. 40–41.

[3] The population given for 1847 was 16,860 and that for 1848 was 20,035.

[4] *Report of Jesse B. Thomas*, member of the Executive Committee of the Chicago Harbor and River Convention, 1847, p. 18. The yearly sales were as follows:

Year	Acres sold	Year	Acres sold
1835	370,043	1842	194,556
1836	202,364	1843	229,460
1837	15,697	1844	235,258
1838	87,881	1845	220,525
1839	160,635	1846	198,849
1840	137,382	1847 (to Nov. 1)	98,569
1841	138,583	.....	

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The imports and exports of a community fairly indicate the condition of its economic development. Measured by this standard, the economic development of the canal region did not lag behind its growth of population. During the period under consideration, the import and export trade of the region chiefly centered at Chicago, as it has since continued to do. The trade at Chicago grew and altered in character with the development of the country tributary to it.[1]

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[1]For the years when the canal was in process of construction, the imports and exports at Chicago were as follows:

Year	Imports	Exports
1836	$325,203.90	$1,000.64
1837	373,677.12	11,065.00
1838	579,174.61	16,044.75
1839	630,980.26	38,843.00
1840	562,106.20	228,635.74
1841	564,347.88	348,862.24
1842	664,347.88	659,305.20
1843	971,849.75	682,210.85
1844	1,686,416.00	785,504.23
1845	2,043,445.73	1,543,519.85
1846	2,027,150.00	1,813,468.00
1847	2,641,852.52	2,296,299.00

Report of Jesse B. Thomas, member of the Executive Committee of the Chicago Harbor and River Convention, 1847, p. 15. These statistics are also given with the omission of the columns for cents in Andrews, *Report on Colonial and Lake Trade*, p. 218.

The leading articles of export for the six years preceding the opening of the canal and the quantities exported were:

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The second period of influence of the canal began in the month of April, 1848.[1] The development of the region during nearly two decades preceding had been in anticipation of the canal. That of the next six years was due to a partial realization of the anticipations with which the project had been carried to consummation. It was a period of large industrial growth. For several months after the opening of the canal its efficiency was adversely affected by an insufficient supply of water on the summit level,[2] and by an insufficient supply of canal boats to carry the commodities and pas-

Year	Bu. of wheat	Bbls. of flour	Bbls. of pork and beef	Lbs. of wool
1842	586,907	2,920	16,209	1,500
1843	628,967	10,786	21,492	22,050
1844	891,891	6,320	14,938	96,635
1845	956,860	13,752	13,268	216,616
1846	1,459,594	28,045	31,224	281,222
1847	1,974,304	32,538	48,920	411,488

[1]The first boat, the General Fry, passed over the Summit level from Lockport to Chicago on April 10, and the General Thornton made the first trip the entire length of the canal from La Salle to Chicago, where it arrived on April 23. In the canal records April 19 is regarded as the date of the opening of the canal.

[2]The Calumet feeder not yet being completed, the supply of water for the Summit level had to be pumped from the Chicago River at Bridgeport. The porous condition of the soil on some of the sections of the canal rendered it extremely difficult to maintain a sufficient depth of water for the navigation of loaded boats.

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sengers seeking transportation.[1] Before the close of the summer, however, the traffic had assumed large proportions. Lumber from the Great Lakes and merchandise from the East passed down the canal for distribution to the canal and river towns and from them to the interior settlements. The farm products from the canal region and from the Illinois River and sugar, molasses, coffee and other tropical products from the New Orleans and St. Louis markets were carried to Chicago on their way to northern and eastern consumers.[2]

With improved facilities for transportation and with the rapid industrial development of the region influenced by these facilities, the traffic and earnings grew almost steadily throughout the period. Only in 1852 did the canal fail to show an annual increase in earnings and in that year the tolls were only $4,723 less than in 1851. They were $43,073 more than for any previous year.[3] During this period the annual tolls increased from $87,890 to $198,321. The decline in earnings in 1852 was due to the low water in the Illinois River

[1]At the opening of the canal only sixteen boats were in commission for the service.

[2]In their report for 1848, the canal trustees mention with evident satisfaction and as an indication of large through-freight business in the future, the fact that sugar and other commodities from the New Orleans market reached Buffalo by way of the Illinois and Michigan Canal on April 30, a full two weeks before the first boat of the season reached that city on the Erie Canal.

[3]For the annual earnings of the canal, see Appendix I.

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which seriously affected the "through" business of the canal.[1]

The importance of the through traffic is shown by the fact that in 1851, 44,000,000 feet of lumber, 47,000,000 shingles, and 11,000,000 lath were sent from Chicago to points beyond the western terminus of the canal, and most of the 3,221,317 bushels of corn received at Chicago that year, came from the Illinois River.[2] From 1851 to 1852 there was a decline of 4,334,976 feet of lumber, 1,067,670 bushels of corn, and 10,057 barrels of salt and 4,134 barrels of pork carried on the canal. But these losses were partially offset by a gain of 39,379 bushels of wheat, 231,826 pounds of sugar and 1,214,418 pounds of merchandise.[3] The net result of these changes was the small reduction in earnings already noted. In 1853 the water supply continued insufficient. There was sufficient gain in traffic, however, to regain the loss of the previous year. The tolls exceeded those of 1851 by seventy-two dollars and those of 1852 by $4,795. The increased earnings over 1852 were chiefly derived from larger shipments of pork, wheat, corn, sugar and lumber.[4] But, in

[1]The low water in the Illinois River was equally injurious to the St. Louis trade. *Annual Report of St. Louis Trade and Commerce*, 1852, pp. 9–14; also *Report of the Canal Trustees*, 1852, p. 3.

[2]Andrews, *Report on Colonial and Lake Trade*, p. 220.

[3]*Swift's Annual Circular* (Report to the creditors), 1854, p. 14.

[4]Ibid., p. 14.

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spite of the river conditions, the canal traffic and earnings continued to grow.[1]

Chicago, Peoria, and St. Louis were directly affected by the canal as a transportation route. Of the three, St. Louis was the only one affected adversely and that only in a limited field. Before the opening of the canal, the Illinois River trade was tributary to St. Louis. After the opening of the canal, most of it became tributary to Chicago. For southern products, St. Louis still held the territory, but the merchandise came principally through the canal and the products of the region largely sought the Chicago market. The Annual Review of Trade and Commerce of St. Louis for 1848 accounts for the decrease of 316,625 bushels of corn and 237,588 bushels of wheat received in that market as compared with the receipts of the previous year in the following words: "The deficit may be accounted for from the opening of the Illinois and Michigan Canal, which drew off to Chicago and other points on the Lakes, the accustomed heavy arrivals from the Illinois River, and

[1] The five leading articles of commerce carried on the canal during the period were wheat, corn, sugar, merchandise and lumber. The quantity of each of these commodities carried is shown in the following tabulation:

Year	Wheat, bu.	Corn, bu.	Sugar, lbs.	Mdse., lbs.	Lumber, feet
1848	454,111	516,230	3,219,122	4,948,000	15,425,357
1849	579,598	754,288	4,218,298	9,176,943	26,882,000
1850	417,036	317,674	5,680,324	10,372,623	38,687,528
1851	78,062	2,878,550	4,591,471	14,175,928	56,845,027
1852	117,441	1,810,880	4,822,297	15,390,346	52,510,051
1853	340,277	2,490,675	7,332,032	10,687,598	58,500,438

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greatly lessened the aggregate amount received at this port."[1] The next year showed a still greater decrease.[2] Henceforth, St. Louis could hope to draw the major part of the grain from the Illinois River only when temporary market conditions should chance to give that market an advantage in price. The freight rates from the Illinois River to the eastern cities by way of Chicago and Buffalo were lower than those by way of St. Louis and New Orleans.[3] Consequently the grain from that region intended for the Atlantic seaboard cities or for foreign export normally sought the northern route.

St. Louis was compensated for this loss, however, by an enlargement of her mercantile interests. The wholesale grocers found new markets for sugar, coffee, tobacco, and other products of the lower Mississippi trade.[4] Eastern merchandise for which St. Louis was the distributing point for the rapidly developing regions west of the Mississippi, could be obtained more expeditiously and cheaply by way of the canal than by way of New Orleans.[5] From 1845 to 1853 the grocery business

[1] *Annual Review of Trade and Commerce of St. Louis*, 1848, p. 7.

[2] The receipts of corn decreased 393,829 bushels and those of wheat 402,254 bushels.

[3] *Annual Review of Trade and Commerce of St. Louis*, 1852, p. 9.

[4] *Annual Review of Trade and Commerce of St. Louis*, 1848, pp. 2, 10.

[5] Andrews, *Report on Colonial and Lake Trade*, p. 220.

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of St. Louis advanced from $1,134,367 to $5,018-677 and the hardware business from $251,259 to $904,316. Between 1846 and 1851 the imports of coffee rose from 65,000 bags to 102,000 bags and sugar from 17,000 packages to 66,000 packages. The sales of dry goods in 1841 amounted to $1,300,000; in 1852 they reached $7,000,000.[1] This growth of trade was not wholly due to the opening of the Illinois and Michigan Canal but was greatly facilitated by it.

The opening of the canal gave a strong impetus to the development of Peoria. Although checked in its growth by the cholera of 1849–50, the population increased from 3,014 in 1847 to 6,202 at the close of 1850.[2] Five hundred and seventy-nine buildings were erected in the three years, 1848, 1849, and 1850.[3] These building operations were facilitated by the cheapening of lumber through the opening of the canal giving access to the northern lumber regions. In 1848 the canal brought large quantities of pine and cedar lumber from the northern forests, reducing the price to about half that of the preceding year when the supply was received from the St. Louis and Pittsburgh markets.[4] Business prospered generally. By 1850 the importations of merchandise, lumber, and other

[1] *Annual Review of Trade and Commerce of St. Louis*, 1856, p. 9.

[2] Drown, *Record and Historical View of Peoria*, p. 146.

[3] Ibid., p. 147.

[4] Ibid., p. 105.

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commodities had quadrupled since 1847.[1] During the season of 1850 six packets made regular weekly trips between St. Louis and La Salle. Twenty-seven steamers served as tow-boats each towing from two to fourteen canal boats at a time. Aside from the canal boats and flat boats an aggregate of 1286 steamers touched at the Peoria wharf during the season, an increase of more than 300 since 1847.[2] The number of steamers at the wharf, however, does not convey a correct impression of the relative amount of business done during these two years, because much of the imports and exports of the latter year were carried on canal boats, the number of which was not recorded. A record was kept only of the steamers that had them in tow.[3]

[1] Drown, *Record and Historical View of Peoria*, p. 107.

[2] Ibid., pp. 107–109.

[3] Ibid., p. 144. The exports for 1851 amounted to $1,227,134.10, the most important items of which were:

Corn, 628,719 bu. at $0.40 per bu.....	$251,487.60
Wheat, 151,465 bu. at $0.68 per bu.....	102,996.20
Oats, 262,357 bu. at $0.35 per bu.....	92,874.05
Flour, 35,753 bbls. at $4.50 per bbl.....	151,888.50
Whiskey, 5,685 bbls. at $10.00 per bbl..	56,850.00
Wool, 250,760 lbs. at $0.30 per lb.....	75,228.00
Dry hides, 10,701 hides at $2.00 per hide	21,402.00
Coal, 20,580 tons, at $2.50 per ton.....	51,450.00
Beef cattle, 1,719 head at $15.00 per head.....	25,785.00
Hogs, 26,796 head, at $7.00 per head..	185,572.00
Cooperage—valued at.....	47,785.00
Sundries—potatoes, eggs, fruit, etc....	25,000.00
Manufactures	100,000.00

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The remarkable growth of Chicago during the twelve years of construction of the canal was far surpassed during the first six years of its operation.[1] The economic development of the country tributary to the city necessarily increased its imports and exports which led in turn to an increase in the population and wealth of the city itself. The population of the four canal counties which had increased from a few hundred in 1830 to 29,716 in 1840 and 80,926 in 1850, more than doubled in the next five years, reaching 171,012 in 1855.[2] Almost an equal gain was made by the river counties from La Salle to the mouth of the Sangamon. From 40,536 in 1840, their population rose to 90,961 in 1850 and 128,462 in 1855. It is thus seen that the population along the waterway from Lake Michigan to the mouth of the Sangamon River increased from 70,252 in 1840 to 171,887 in 1850 and 299,474 in 1855. But the growth of population was not confined to the counties immediately touching the canal and the upper course of the Illinois River. As the better tracts of land in these counties were taken up, settlements continually spread further back into the unoccupied sections. By 1855 more than half the population

[1] *Senate Executive Document*, No. 16, 34th Cong., 3rd Sess., pp. 40–41.

[2] The population is not obtainable for 1848, the beginning of canal traffic, nor for 1854, the year when railway competition began. The figures for 1840 and 1850 are taken from the federal census and those for 1855 from the Illinois state census of that year.

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Shipping crowded at the mouth of the Chicago River by the flood in the Des Plaines March 12, 1849. This is probably the earliest camera view of the river in existence, the original being a daguerreotype by P. von Schneidau. Fort Dearborn is shown at the right.

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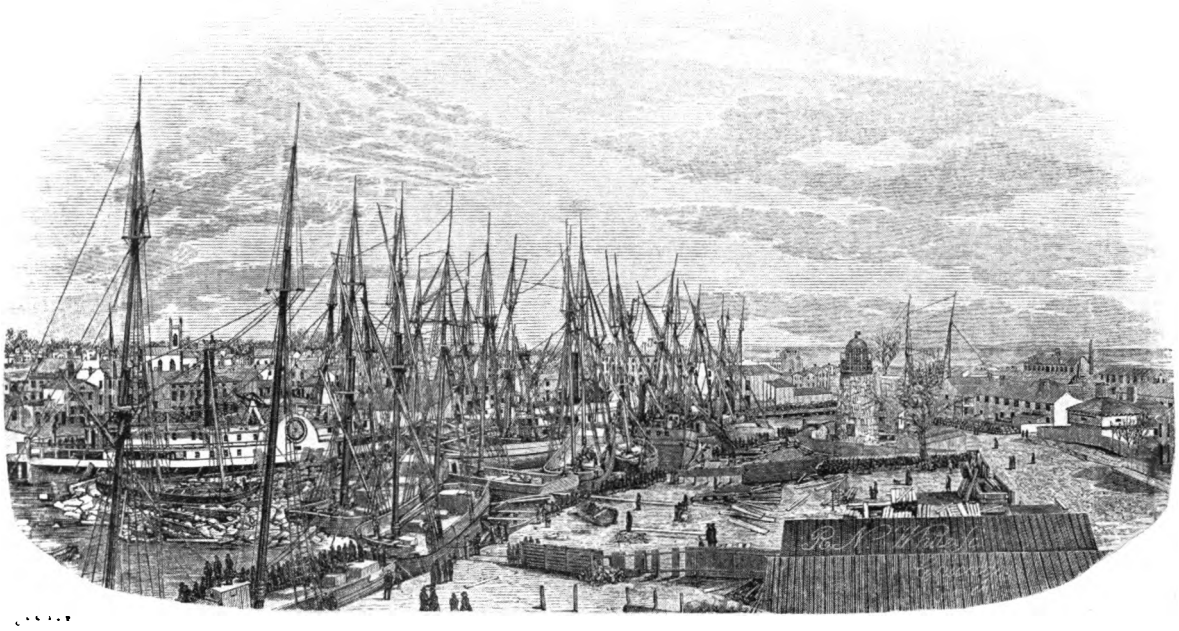

Chicago Harbor, 1849

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of the state was to be found north of the Sangamon River,[1] and the most densely populated counties lay in the region of the waterway.[2]

During the first period of canal operation, from 1848 to 1854, the population of the city of Chicago advanced from 20,035 to 74,500.[3] But the enlargement of commerce more than kept pace with the growth in population. The grain exports grew from 3,001,740 bushels to 13,132,501 bushels, the shipments of corn alone increasing from 550,460 bushels to 6,837,890 bushels.[4] By 1851 the Chicago exports had reached $5,395,471 and the imports, $24,410,400.[5] The heavy preponderance

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[1]Of the 1,300,251 inhabitants of the state in that year, 737,867 were north of the Sangamon River.

[2]Of the five counties in the state having a population of more than 30,000 in 1855, Cook, La Salle and Peoria were on the waterway and Madison and Adams on the Mississippi. The areas of densest population in the state were in Cook, Kane, and Peoria counties. Two of these were on the waterway and the other was connected with it by way of the Fox River and was also within wagoning distance of Chicago. Moreover, since 1851 Kane county had been connected directly with Chicago by the Galena and Chicago Union Railroad. Gerhard, *Illinois As It Is*, pp. 221–224.

[3]*Senate Executive Document*, No. 16, 34th Cong., 3rd Sess., pp. 40–41.

[4]*Annual Report of the Chicago Board of Trade*, 1905, p. 19.

[5]Andrews, *Report on Colonial and Lake Trade*, pp. 220–222.

Of these imports the chief items were:

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of imports over exports is accounted for chiefly by the fact that a large proportion of the imports passed through the canal to the regions whose products found their way to other markets. Large quantities of ready made clothing, hats, caps, boots, and shoes, and other manufactured products intended for the St. Louis market were imported through Chicago and were carried by canal and river to St. Louis from which city they were distributed to the newer portions of the West.

The extension of settlement to portions of the state not easily accessible to the waterway led to a demand for railroad connection with the markets. Of the lines of railroad projected to meet this demand, one was destined to come into inevitable rivalry with the canal. For many years the question of the construction of a canal or railroad

Merchandise	$21,081,300
Lumber, shingles, and lath	1,698,755
Iron	411,440
Sugar	282,582
Salt	192,811
Coal	150,000
Coffee	135,792

The leading exports of the year were:

Merchandise	$1,245,500
Corn	1,159,674
Furs	564,500
Wheat and flour	477,253
Beef, tallow, and hides	523,644
Pork, hams, and shoulders	400,816
Wool	326,083
Lard	238,140

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from the Illinois River near the terminus of the Illinois and Michigan Canal to the Mississippi at Rock Island, had been agitated. On February 27, 1847, the Rock Island and La Salle Railroad Company was chartered to construct a road between these two points.[1] It was expected that this road would prove an important feeder for the canal by developing the region between the two rivers and also by tapping the upper Mississippi trade and drawing it to Chicago through the canal. An amendment of the charter, February 7, 1851, however, authorized the extension of the road to Chicago and designated the corporation as the Chicago and Rock Island Railroad Company.[2] It was the evident intention of the legislators in granting the right of extension, to make the railroad supplementary to the canal rather than a competitor for its traffic. Therefore, following the example of New York regarding railway competition with the Erie Canal, the act granting the charter provided for compensation to the canal for losses of freight traffic by reason of railroad competition.[3] It required that for all freight except live stock, carried by the road when the canal was open for traffic, and originating between a point twenty miles west of La Salle and the eastern terminus of the road at Chicago, the company

[1] Crosby, *History of the Chicago, Rock Island and Pacific Railway*, p. 2.

[2] Ibid., pp. 2–3.

[3] Cf. Prentice, *Federal Power Over Carriers and Corporations*, pp. 94–95.

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should pay to the canal trustees, tolls equal to those which the canal would have earned if the freight had been carried on that route.[1]

Through a blunder of the trustees the road escaped the burden of this provision.[2] A formal grant by the trustees of a right of way through the canal lands not later than the first Monday in June, 1851, was necessary in order to obligate the company to observe this provision of the act of incorporation. Advised that the right of eminent domain could not be exercised in the case of land granted for public use, the trustees refused to make the grant, thinking in this way to prevent railway competition. The company instituted successful condemnation proceedings and the trustees failed in an effort to enjoin the construction of the road through canal lands. The work of construction was begun in April, 1852, and the road was opened for traffic from Chicago to Rock Island in the summer of 1854. In the same year the Bureau Valley Railroad was completed from Bureau Junction on the Chicago and Rock Island to

[1]The act granting the charter also provided that all freights carried by other railroads extending from Chicago to points on the canal or to points on the Illinois River within twenty miles of the terminus of the canal, should be subject to the same rates of toll as those imposed on the Chicago and Rock Island Railroad.

[2]It is not probable that such a provision could have remained operative for any great length of time. It was an impossible provision as the experience of New York proved.

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Peoria, and leased in perpetuity to the latter corporation. Thus, before the close of 1854 the railroad was in competition with the waterway from Chicago to Peoria and was supported by a rapidly developing country between the Illinois and Mississippi Rivers and on the upper Mississippi.

The opening of the railroad for traffic along the line of the canal ushered in the third period of the canal influence. The inevitable contest for the traffic of the region common to both transportation lines, began at once. The railroad easily took from the canal the passenger traffic, which had assumed considerable proportions. For six years the canal and river route had been a popular one with western travelers. An excellent line of packets operated between Chicago and La Salle and an equally good packet service was provided for the river trip from La Salle to St. Louis.[1] But within a few months after the opening of the railroad, practically all the passenger business deserted the canal for the speedier mode of travel.[2] The contest for freight, however, was long and spirited.

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[1]Gould, *Fifty Years on the Mississippi*, p. 522.

[2]The railroad was opened from Chicago to Joliet in 1853 and at once became a favorite route for passengers between these two cities. As a result the passenger traffic on the canal was reduced to 25,966 for the year. With the opening of the railroad the entire length of the canal the following year, practically all the passenger business between Joliet and La Salle also deserted the canal.

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In the end, the railroad secured most of this traffic also, but only after its service and its charges had been greatly affected by the struggle. Both by its traffic and by the effect of its actual or potential competition on railroad rates, the canal has continued to influence the development of the region in which it is located though with diminishing effect. Naturally the high class freights were the first to seek the more rapid means of transportation. Lumber, grain, coal and stone continued to be transported on the canal in large quantities for several years after the higher class freight had chiefly gone to the railroad. For the commercial year, from April 1, 1866, to March 31, 1867, 33-929,632 bushels of corn were received at Chicago, of which 9,575,569 bushels were carried on the canal and 4,279,190 bushels on the Chicago and Rock Island Railroad.[1] Of the 10,713,981 bushels of oats received during the same period, 1,417,436 bushels came by the canal and 982,761 bushels by the competing railroad.[2] This, in spite of the fact that the railroad operated 407 miles of line and

[1]Wright, *Chicago*, p. 154.

[2]The railroad carried 1,420,163 bushels of wheat and 179,316 barrels of flour as against 83,834 bushels of wheat and 45,317 barrels of flour carried by the canal. It should be remembered, however, that at this time the railroad was completed and open for traffic, almost to Des Moines, Iowa, and drew much of its grain traffic from non-competitive territory. There are no statistics which show what proportion of the wheat and flour produced in the canal region was carried by each of the competitors.

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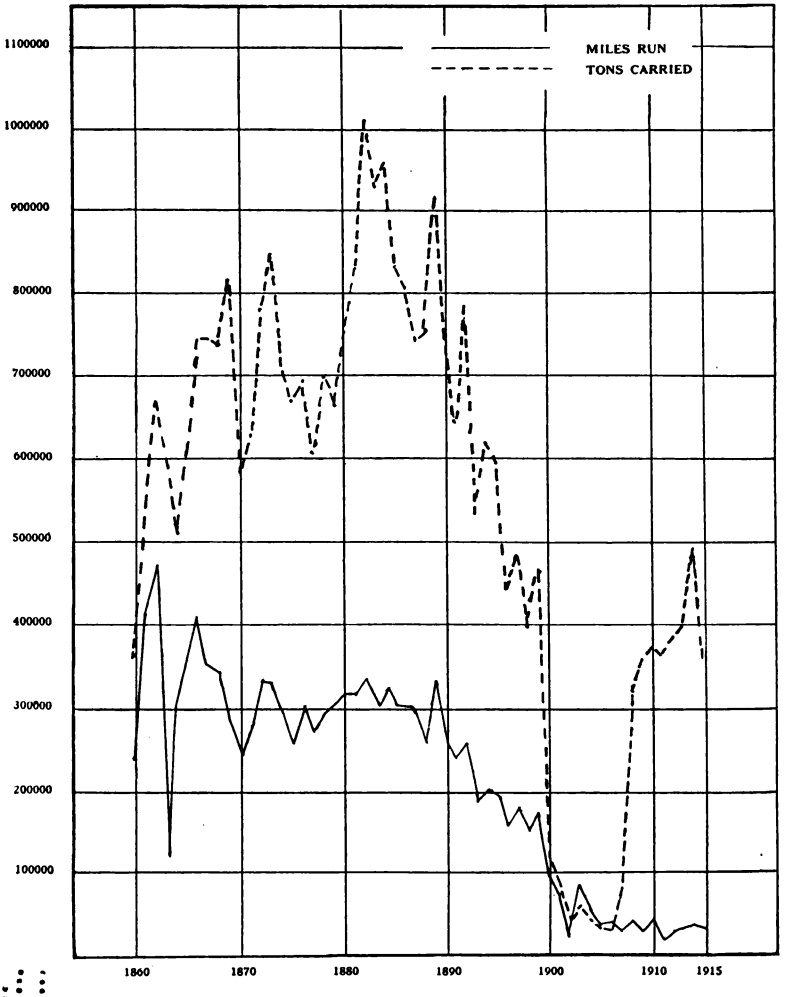
MILES RUN AND FREIGHT TRANSPORTED ON THE ILLINOIS AND MICHIGAN CANAL, 1860-1915



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drew its traffic all the way from central Iowa.[1] 12,722,569 bushels of corn were transported to Chicago on the canal in 1873 and 1874, or an annual average of 51,300 bushels for each of the 124 miles of canal and river route operated by the canal commissioners in competition with the railroad.[2] In the same time the Chicago and Rock Island Railroad carried to Chicago 8,547,187 bushels, or an annual average of 6,284 bushels for each of the 680 miles of road then operated by the company.[3]

By the reduction of canal charges from time to time, by the personal solicitation of freight by the boat owners, and by the permission of boat owners to shippers to use the boats for storage purposes when navigation was closed, the canal traffic continued to increase till 1882, in which year the tonnage carried was 1,011,287 tons. From that year till 1899 the amount of freight carried annually declined at a variable rate. With the exception of 1898, however, the tonnage stayed well above 400,000 tons a year till 1900, when it sud-

[1]In 1866 the main line of the Chicago and Rock Island Railroad extended to Kellogg, Iowa, and the Oskaloosa branch to Washington, in the same state.

[2]Until the opening of railroad traffic between the various Illinois River towns and Chicago, large quantities of grain were sent to market through the canal from as far down the river as Beardstown. By 1873, however, the greater part of this traffic had gone to the railroads.

[3]*Special Report of the Canal Commissioners*, 1875, p. 10.

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denly dropped to 121,759 tons and has since continued its downward course. While the reduction of canal charges assisted in preserving traffic for the boat owners and in keeping up the canal tonnage, it operated adversely on the canal earnings. The maximum tolls were received in 1866, and amounted to $302,958.[1] By 1877 the annual tolls had fallen below $100,000,[2] and in 1882, the year of the maximum tonnage, they were only $85,947. Since that time the decline in earnings has about kept pace with the decline in tonnage.

In recent years, the traffic and earnings of the canal and its relative importance as a transportation route, have declined rapidly. In 1905, of the 7,944,955 barrels of flour received in the Chicago market 21,216 came by the canal, while none of the 26,899,012 bushels of wheat and only 35,300 bushels of the 92,486,761 bushels of oats were carried on the canal. As usual, the corn shipments exceeded those of any other single commodity, amounting to 326,802 bushels of the 110,823,444

[1]Recent canal reports give the tolls for 1866 as $202,958. The statement is due to a typographical error which has been copied from year to year. The correct figures will be found in all the reports up to 1882.

[2]Since 1879, the gross expenditures of the canal have regularly exceeded the tolls. In 1907, the expenditures were $50,050 and the tolls were $2,176.87. In this year, however, the canal had an income from rentals, water-power, leases, etc., of $11,933.79, giving it a total income of $14,110.67, and leaving an excess of expenditures over earnings of $35,939.34.

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bushels received at Chicago. Neither rye nor barley were found among the shipments on the canal, although 2,392,444 bushels of the former and 28,074,142 bushels of the latter were received in the Chicago market. Of the 1,110,371,601 pounds of dressed beef, 1,160,572,790 pounds and 144,909 barrels of pork products shipped from Chicago during the year, not a pound was carried on the canal.[1] Such products as coal, potatoes, beans, salt and corn products were carried entirely by the railroads, and only 66,000 cubic feet of stone found its way to Chicago on the canal.

The ultimate loss of the canal traffic has been due to several causes. The first in point of time was the condition of the Illinois River, which often, for months continuously, was unnavigable by canal boats and frequently by river steamers.[2] The inability of the canal boats to navigate the

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[1] *Report of the Chicago Board of Trade*, 1905, pp. 2, 5, 10, 16, 42, 43.

[2] Almost every year from the opening of the canal, the trustees called attention to the necessity of a sufficient depth of water in the Illinois River to float canal boats throughout the season of navigation. In 1856, from the middle of June till late in November there was not more than twenty inches of water on some of the most troublesome sand-bars in the river. Navigation was practically suspended during a period of nearly six months. The trustees estimated that the revenues of the canal were reduced $55,000 or $60,000 below what might reasonably have been expected had there been sufficient depth of water to navigate the canal boats carrying through freight.

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river necessitated the transfer of freight to the river steamers at La Salle, with the consequent delay and expense. The failure of steamboat navigation restricted the canal to local traffic. The canal management recognized the importance of an unobstructed channel from La Salle to St. Louis, but the state and federal governments acted too tardily on the constant appeals of the trustees and commissioners to afford effective relief.[1] The frequent interruptions of river traffic led the river towns to rely less on water transportation and to turn to the railroad as offering a solution of their transportation difficulties.[2]

In the contest for traffic the railroad possessed not only the advantages of greater speed and freedom from the effects of freshets and droughts, which so seriously affected the river portion of the waterway, but it also gave a more convenient and satisfactory service to many of the shippers who had formerly used the canal. Before the opening of railroad transportation, shippers had hauled their commodities long distances to the canal. The building of railroads drew from the canal much of the traffic of these outlying regions, by offering a more convenient transportation route. The railroads built branches and established stations at points more convenient to the farms and inland villages than were the shipping points

[1]For an account of the construction of locks and dams, see Chapter V, pp. 136–138.

[2]*Annual Review of Trade and Commerce of St. Louis*, 1854, p. 11 and 1859, p. 48.

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on the waterway. The greater convenience of the railway service also materially aided in taking traffic from the canal in the canal towns and cities. In the early years of the contest between the rival transportation agencies, the terminal facilities for handling freight on the two routes, were not very different. Whatever advantage existed was in favor of the canal. Warehouses for the receipt, storage and shipment of grain and merchandise were established on its banks. Mills and factories largely depended on it for both power and transportation facilities. But, as the years passed by, the railway facilities were improved and those of the canal were not. Then the owners of warehouses and manufacturing establishments, grain shippers and others largely engaged in transportation, showed a tendency to desert the canal and transfer their business to the railroad. Wherever business establishments were kept up on the canal, the railroad usually constructed side-tracks to them, and became a competitor for business on the very banks of the canal itself.

The terminal facilities at Chicago have been especially advantageous to the railroads. Spurs have been run to all the large manufacturing establishments, to the grain elevators, to the lumber yards, to the stock yards, and to every other point where it is possible to place a track needed for the delivery of incoming freight or for the receipt of that intended for shipment. Many of those are inaccessible to the waterway, while through the

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reciprocal switching arrangements among the railroads, they are all accessible to every railroad entering the city. This advantage of the railroad over the canal is well illustrated in the handling of building stone. When the stone is intended for use at any considerable distance from the canal, it is found cheaper to transport it from the quarries along the canal by rail and switch the cars to the nearest rail point, than to pay the lower freight rates on the canal and incur the heavier expense for the longer haul by teams in the city. Only a part of the grain elevators are located on the waterway, while all are accessible to the railroads. The same is true of the coal yards. Formerly large quantities of coal were shipped from the Spring Valley district to Chicago by way of the canal. Now, none is transported on the canal.

The system of pro-rating freight charges, however, has done more than any other one thing to undermine the canal traffic. The practice of pro-rating grain from the canal region began in 1879 and consisted of an arrangement between the traffic officials of the Lake Shore and Michigan Southern and those of Chicago, Rock Island and Pacific Railroads whereby the Lake Shore cars should be hauled by the Rock Island road from Chicago to the loading point along the canal and be returned loaded for transportation to the seaboard cities. For this service the Rock Island received ten per cent of the Chicago-New York rate with a minimum of two cents a hundred pounds for hauling the cars. Since an elevator

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charge of a cent and a fourth a bushel had to be met at Chicago on all grain shipped on the canal, while the loaded cars passed through the city without the necessity of rehandling the grain, the pro-rating arrangement proved a serious obstacle to the canal shippers of grain intended for the eastern markets.[1] As early as 1877 William Thomas, the General Superintendent of the canal, complained that grain was being driven from the canal by the discrimination of the owners of Chicago elevators in favor of the railroads and by injustice in grain inspection.[2] While there may have been some basis for these charges, the tendency of the grain to leave the canal at Joliet seems to have been more largely due to the competition of the Michigan Central Railroad for an increasing share of the eastern grain shipments. The Michigan Central at Joliet and the Toledo, Peoria and Western at Peoria, with their eastern connections, have been able to make rates on eastern grain shipments which could not be met by any combination of local rates. As a con-

[1]The statement is made on the authority of Mr. Noble Jones of Mokena, Illinois, who was a grain shipper from the canal towns and at whose instance the pro-rating arrangement was made in 1879. The statement has been verified by Mr. James L. Clark, General Western Freight Agent of the Lake Shore and Michigan Southern Railroad and by Mr. William Borner, General Freight Agent of the Chicago, Pittsburgh and Ft. Wayne Railroad, both of whom were then connected with the roads interested in the agreement.

[2]*Report of the Canal Commissioners*, 1877, p. 38.

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sequence the canal has been unable for several years to handle grain from these points. In recent years, the Peoria-New York rate has ordinarily been about a cent and a half a hundred pounds above the Chicago-New York rate.[1] It is clearly impossible for the waterway to carry the grain to Chicago and transfer it to eastern carriers in competition with this rate. Joliet has had the same rate as Chicago for grain billed through to New York whether it goes by the Michigan Central or through Chicago. Under the rules of shipment, grain may be unloaded at Chicago for a period not exceeding ten days and reshipped on the same bill of lading. The result has been that all grain intended for the Chicago market from Joliet has been billed to New York and the cars used to carry other grain from Chicago to New York on the through bill of lading.[2] At other points along the waterway, however, the water transportation has been able to withstand the competition of the railroad rates on grain intended for the Chicago market.

The canal has not only been able to meet the local rates of the railroads, but where they are competitors, it has forced the railroad rates much

[1]The all-rail rate from Chicago to New York during recent years has varied from 16.46 cents to 21.83 a hundred pounds, falling below 17 cents only in 1900, 1901, and 1905. In August, 1906, the rate was 17.50 cents and that from Peoria to New York was 19 cents.

[2]This advantage has been lost under the re-arrangement of rates in northern Illinois since the passage of the Hepburn act.

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below those at non-competitive points for similar hauls. In 1874 the average length of haul for grain on the canal was 72.5 miles and the average rate, 3.47 cents per bushel. At the same time, the Illinois railroad commissioners' rate for a haul of equal length was 7.48 cents per bushel.[1] The Chicago, Rock Island and Pacific Railroad, however, found it impossible to maintain the maximum rate allowed by the commissioners because of the canal competition. In 1876, the canal rate on corn from La Salle to Chicago, 99 miles, was 3.25 cents per bushel. The railroad rate was 4.50 cents. From Henry to Chicago, 128 miles, the rate by river and canal was 4 cents per bushel while the railroad charged 4.50 cents as against 6.83 cents from Tiskilwa to Chicago, a distance of 123 miles.[2] The grain from both Henry and Tiskilwa was carried by the same railroad and, with the exception of the nine miles from Tiskilwa to Bureau Junction it was carried over the same tracks and frequently on the same trains. From Peoria to Chicago, 160 miles, the railroad rates were 4.50 cents a bushel during the winter season and 3 cents in summer, when the canal was in operation.[3]

The freight rates on lumber showed a similar influence of the waterway. From Chicago to

[1] *Special Report of the Canal Commissioners*, 1875, p. 11.

[2] *Report of the Canal Commissioners*, 1876, p. 8.

[3] For many years the railroad made a practice of charging a higher rate in winter than in summer at all points where it had to compete with the waterway for traffic.

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Peoria, the canal and river rate was $2.25 per thousand feet. The railroad charged $2.985. For a haul of substantially the same length from Chicago to Geneseo, 159 miles, the railroad rate was four dollars.[1] An examination of the schedules of local grain rates from various shipping points in northern Illinois to Chicago in 1901 shows still further the influence of the canal on freight rates on competing railroads. The rates on the Chicago, Rock Island, and Pacific Railroad had been determined by long competition with the canal and by the possibility that much of its traffic might again revert to the canal in case the railroad rates should be raised. The rates on roads having no water competition were distinctly higher, as shown by the following tabulation of distances and charges:

Town	Transportation Route	Distance from Chicago, Miles	Rates per 100 lbs. Cents
La Salle	C. R. I. & P. R. R.	99	5.5
Dixon	C. & N. W. R. R.	100	8
Ottawa	C. R. I. & P. R. R.	85	5
Mendota	C. B. & Q. R. R.	83	6.5
Marseilles	C. R. I. & P. R. R.	77	4.75
Emington	Wabash R. R.	77	6
Earlville	C. B. & Q. R. R.	72	6.5
Morris	C. R. I. & P. R. R.	62	4
Chebanse	Ill. Central R. R.	62.8	6
Joliet[2],	C. R. I. & P. R. R.	40	3
Manhattan	Wabash R. R.	40	4
Aurora	C. B. & Q. R. R.	37	5.6

[1] *Report of the Canal Commissioners*, 1876, p. 8

[2] The Chicago and Alton and the Atchison, Topeka, and Santa Fe railroads also compete for Chicago traffic at Joliet.

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These lower rates from the canal towns were necessary in order to prevent the Chicago shipments from going chiefly by way of the canal.[1] Until recently it was possible to load the canal boats and barges to the depth of four feet and eight inches. With a fleet load of from 16,000 to 17,000 bushels, the grain rate from Marseilles to Chicago was two cents a bushel.[2] The Ottawa rates were two and a fourth cents and those at Utica two and three-eights cents. Since 1902, shallow water in the canal has precluded the loading of boats to their full capacity. The rate has therefore increased on the average about a half cent a bushel, the Marseilles rate being two and a half cents.[3]

After the passage of the Hepburn act, there was a general readjustment of railroad rates in the vicinity of the canal. In this readjustment the

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[1]That the Rock Island rates were determined by the competition of the waterway is shown by the fact that the non-competitive winter rate was higher than the competitive summer rates and by the further fact that its charges from all points beyond a reasonable teaming distance from the waterway, the Rock Island rates were similar to those of other railroads.

[2]When the boats could be loaded to a depth of four feet and eight inches, the usual steamer load was from 4,000 to 4,200 bushels and each barge load from 6,000 to 6,200 bushels. A steamer and two barges make up a fleet.

[3]This charge includes the entire expense to the shipper for the delivery of the grain to the elevator in Chicago.

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local grain rates came to be based roughly on the principle of distance tariffs arranged on a series of concentric circles with Chicago as the center. This arrangement resulted in a decided rise in railroad rates in the canal towns. The rates at Marseilles increased from four and three-quarters cents per hundred pounds to five and one-half cents. At Morris they advanced from four to five cents. At Ottawa from five to five and a half cents. At La Salle from five and a half to six cents.

The present schedule gives the canal an advantage of from a cent to a cent and a half on each hundred pounds. However, it is not probable that this difference in rates will turn the major part of the grain traffic back to the canal. Other advantages of the railroad tend to offset this difference in rates, especially for through traffic.

During the period of its operation, the canal has carried 74,031,104 tons of freight.[1] It has received $6,631,007 in tolls and expended $5,391,107 for maintenance, repairs and operation. In these years it has also received large sums from rentals, leases, and privileges.[2] It has not proven to be the great source of revenue for the state treasury that had been anticipated in the days of

[1]These statistics include all the period of operation up to December 1, 1915, except those regarding the tonnage. No tonnage statistics are available before 1860.

[2]The canal office is unable to furnish statistics for these items complete. On pages 85 and 86 will be found a tabulation of these earnings for the eighteen years from 1898 to 1915 inclusive.

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its projection and construction. But the great services of the canal have been in the economic development of the middle West, particularly of the northern part of Illinois, and in its influence on railroad rates. For the performance of these services the canal has been worth all it has cost the state.

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Chapter V

IMPROVEMENT AND ENLARGEMENT

When the Illinois and Michigan Canal was projected, it was intended to form the connecting link in a great system of waterways which would carry the commerce of the interior of the United States. It was therefore projected and constructed on a plan supposed to be adequate for that purpose. Before it was completed, however, experience had shown that the Illinois River channel was inadequate to furnish an effective commercial route to the Mississippi, in low stages of water[1]. Accordingly, in 1845, at the request of Governor Ford and under the patronage of George Bancroft, Secretary of the Navy, George R. Mowry examined the river with a view to the improvement of navigation from La Salle to the mouth of the stream. This examination disclosed the fact that on seventy-one shoals and bars, the depth of water did not exceed thirty-two inches and on nineteen or twenty of these it was not more than

[1]In a letter to Capt. W. H. Swift, dated November 21, 1845, Mowry writes: "With the exception of a few long stretches of deep water, the river is filled with shoals from Peoria to within twenty miles of the mouth. Some of these shoals are long and all of them have but from 26 to 32 inches of water upon them."

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twenty inches at its lowest stages.[1] Such a channel was clearly inadequate for steamboat navigation, to say nothing of floating the canal boats which it was expected to carry within the next three years. Mowry therefore recommended the construction of six locks and dams, which he estimated would give a minimum depth of three feet of water at the lowest known stage of the river.[2] The importance of the improvement was fully appreciated, but as it was estimated to cost $492,-292.70, the state of Illinois was in no financial condition to undertake its accomplishment at that time.

The hindrances to navigation in the Illinois

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[1] *Illinois House Reports*, 1846–7, p. 39. Cf. *Report of the Canal Trustees*, 1846, pp. 15–26. Mr. Bancroft set apart $15,000 of the funds at his disposal to pay the expenses of the survey.

[2] The recommended locks and dams and their estimated cost were as follows:

Location	Length of Dam, ft.	Height of Dam, ft.	Lift of Lock, ft.	Cost
Henry	700	9	7	$63,151.26
Copperas Creek	800	10	7	81,820.76
Foot of Grand Island	800	10	4	76,561.42
La Grange	600	11	6	62,455.30
Florence	1200	11	7	78,902.56
Apple Creek	1400	9	6	81,099.30
Excavation of channel between mouth of Apple Creek and mouth of Illinois River				3,365.40
				$447,357.00
Add 10% for contingencies				44,735.70
Total				$492,292.70

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River, however, were no more serious than those in other western streams. Of the three hundred and thirty-eight vessels registered with the United States Surveyor and Inspector at St. Louis, from 1838 to 1841, fifty-three were lost through accidents. It was estimated that fully nine-tenths of these losses were occasioned by obstructions to navigation which were readily removable.[1] Accordingly, with the hope of securing the improvement of the Mississippi and its most important tributaries, by the federal government, a river improvement convention was held at Memphis, Tennessee, November 12–15, 1845,[2] attended by representatives from Tennessee, Kentucky, Alabama, Mississippi, Louisiana, Arkansas, Missouri, Illinois, Indiana, North Carolina, South Carolina, Texas, and the Territory of Iowa.[3] As a part of a general scheme for the development of the interior of the country, the convention recommended the improvement of the Mississippi and its chief tributaries and the connection of the Great Lakes and the Mississippi by means of a ship canal.[4] At the following session of Congress, the House was flooded with bills for all sorts of internal im-

[1] *Report of St. Louis Chamber of Trade and Commerce*, 1842, p. 25.

[2] The Southwestern Convention, usually called the Memphis Convention.

[3] *Proceedings of the Southwestern* (Memphis) *Convention of 1845*, pp. 3–5.

[4] *Proceedings of the Memphis Convention*, 1845, pp. 25–26.

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provements.[1] As a result, the River and Harbor bill became much more elaborate and extensive than its predecessors had been. As finally passed by the House, after many eliminations, it carried appropriations for forty-nine specific objects and aggregating $1,378,450; but it contained none for the improvement of the Illinois River nor for the proposed ship canal, although Stephen A. Douglas, John Wentworth, Robert Smith, and Edward D. Baker, had strenuously endeavored to secure such recognition for the waterway.[2] The bill passed the senate without amendment,[3] but was vetoed by President Polk on the ground that the federal government had no constitutional authority to appropriate funds for the construction of works of internal improvement within a state, as most of the proposed improvements were.[4]

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[1] *Congressional Globe*, 29th Congress, 1st session, pp. 530–531.

[2] Among the items in the bill was one of $12,000 for harbor improvement at Chicago and another of $75,000 for improving the harbor at St. Louis. The bill also carried an appropriation of $240,000 for the improvement of the navigation of the Mississippi, Missouri, and Arkansas Rivers and the Ohio below the falls at Louisville.

[3] The bill passed the House, March 20, and the Senate, July 24, 1846, and was vetoed August 3, 1846.

[4] *Congressional Globe*, 29th Congress, 1st session, pp. 1181–1183, also, *Messages and Papers of the Presidents*, IV, pp. 460–466. The River and Harbor Bill which passed the House, February 20th, and the Senate, March 3, 1847, carrying appropriations ag-

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Deeply chagrined at the miscarriage of their plans, the friends of river improvement in the West called a Harbor and River Convention which met in Chicago, July 5, 1847.[1] The Convention was avowedly non-partisan and numbered among its members many men of prominence in the political and industrial world. Edward Bates of Missouri presided. Letters endorsing the object of the convention were received from such men as Thomas H. Benton, Silas Wright, Henry Clay, Martin Van Buren, Lewis Cass, and Daniel Webster, as well as from many less well known men of affairs.[2] Resolutions were passed declaring it the sense of the convention that Congress possessed the constitutional power to regulate both foreign commerce and commerce among the states, and memorializing that body to facilitate both by the

gregating $564,000, was also vetoed, but being in the hands of the President at the close of the session, the veto message was not received by the House till December 15, 1847. The bill contained no provision, however, for the improvement of the Illinois River.

[1]The states represented by delegates in the convention were: Connecticut, Florida, Georgia, Indiana, Illinois, Iowa, Kentucky, Maine, Massachusetts, Michigan, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Carolina and Wisconsin.

[2]Most of these letters unreservedly committed the writers to the support of the movement for the improvement of the waterways of the middle west, but in a few cases, as those of Cass and Wright, the writers were more reserved in the form of their statements. *Proceedings of the Chicago Harbor and River Convention*, 1847, pp. 28–37.

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improvement of the rivers and harbors of the interior.[1] The opposition of many of the Democratic leaders, however, together with the sectional jealousies which developed in the effort to apportion the appropriations among the various interests involved, and the straightened condition of the finances due to the Mexican War, resulted in the failure of the federal government to take any steps toward the improvement of the Illinois River till 1852, when the sum of $30,000 was appropriated for that purpose.[2] The expenditure of this sum on a channel more than two hundred miles in length could do little more than furnish a temporary relief from the worst bars and shoals.

The unusual drought in Illinois in 1856 so seriously interfered with river traffic that a corporation known as the Illinois River Improvement Company was formed for the purpose of maintaining a navigable channel, by the use of docks and wing-dams.[3] In 1858 J. B. Preston made

[1] *Proceedings of the Chicago Harbor and River Convention*, 1847, pp. 39–42.

[2] The River and Harbor Bill of 1851 had contained an appropriation of $50,000 for the improvement of the Illinois River, but it failed to pass the Senate.

[3] This company was incorporated February 14, 1857. There were forty-five incorporators, among them men of far more than local prominence, such as W. B. Ogden, Col. W. F. Thornton, Gen. J. M. Ruggles, and others. The capital stock of the corporation was $3,000,000 divided into shares of $500 each. The affairs of the corporation were to be controlled by thirteen directors chosen annually, who were

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surveys and estimates for such enlargement of the Illinois and Michigan Canal and such improvement in the Illinois River channel as would insure a waterway that would carry the Mississippi River steamboats to Chicago at the lowest stages of water. The corporation, however, was unable to raise the funds to carry on the work and in the midst of the excitement aroused by the slavery agitation, Congress failed to give any attention to the project.[1]

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required to make detailed reports of the business of the corporation to the Secretary of State not later than January 15th of the year succeeding the one for which the report was made. The work of channel improvement was required to be begun within two years from the date of incorporation of the company and be completed within seven years. The corporation was empowered to charge fees and tolls and to lease or sell water-power, but it could not engage in commerce.

[1]The need of the improvement in order to complete an efficient transportation route is shown by the words of the Superintendent of the Illinois and Michigan Canal in his annual report, December 1, 1860. He says: "The water in the Illinois River has been unusually low since April. Boats have made but two round trips from Chicago to St. Louis during the season; the low water has interfered very seriously with the lumber business and the grain trade from the River." He gives the depths of water on the "Tree-top Bar," a short distance below La Salle as follows:

Mar. 31, 6 ft. 5 in.	April 28, 3 ft. 5 in.
May 2, 2 " 7 "	June 24, 1 " 11 "
July 26, 2 " 3 "	Aug. 28, 2 " 0 "
Sept. 26, 1 " 8 "	Oct. 3, 1 " 8 "
Nov. 25, 2 " 5 "	

The lowest water in the canal was 4 ft. 6 in.

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The closing of the lower Mississippi to northern vessels at the outbreak of the Civil War, and the threatened complications with Great Britain, growing out of the Trent affair, caused a renewed interest in the development of a larger and deeper waterway from the Mississippi to the Great Lakes. On February 20, 1862, Francis P. Blair introduced into the House of Representatives, a bill providing for the development of such a waterway by the federal government, through the enlargement of the Illinois and Michigan Canal and the improvement of the Illinois River channel.[1] Bitterly attacked by such men as Thaddeus Stevens, Daniel W. Voorhees, William S. Holman, and Clement L. Vallandingham, the bill was first postponed till the following December and finally defeated, on February 9, 1863.[2]

[1]It was estimated that a channel 160 feet wide with locks 350 feet long and 75 feet wide, and with sufficient depth to accommodate vessels drawing six feet of water, could be developed at a cost of $13,346,824. The bill carried an appropriation of this amount. The engineer, John Ericsson, estimated that by the use of buoys, iron-clad gun-boats 200 feet long and 25 feet wide could be taken, stripped, through such a channel. He regarded these vessels as ample for the protection of the Great Lakes.

[2]The bill as reported from the Committee on Military Affairs, is given in the *Congressional Globe*, 37th Congress, 2nd session, p. 2711. As amended by the House to include the enlargement of the locks in the New York canals, it is to be found in the *Congressional Globe*, 37th Congress, 3rd session, p. 700. At p. 830 is also to be found the bill which was accepted as a substitute and then finally defeated in the House, February 9, 1863.

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On March 2, a call was issued from Washington for a National Ship-canal Convention, to be held in Chicago the following June. The call was signed by Edward Bates, Attorney General of the United States, by eighty members of the House of Representatives, and by fourteen Senators. The convention met June 2, 1863, with Vice-President Schuyler Colfax as chairman. In a series of resolutions and a memorial to Congress, the convention urged the great military and commercial importance of the work and the desirability of national ownership and control of the waterway.[1] The course of events, however, tended to lessen the weight of the arguments for the immediate construction of such a waterway. The fall of Vicksburg, July 4, 1863, opened the Mississippi to navigation throughout its full length. In the meantime the immediate danger of war with Great Britain had practically disappeared. Therefore, when Isaac N. Arnold, on January 11, 1864, introduced a bill in accordance with the recommendations of the Chicago Ship-canal Convention,

[1] *Proceedings of the National Ship-canal Convention*, 1863, pp. 40–41, and 227–246. Based on a survey and estimates completed by William Gooding and J. B. Preston shortly before it met, the convention recommended the enlargement of the Illinois and Michigan Canal from Chicago to Joliet to a width of one hundred and sixty feet and a depth of seven feet, with locks three hundred and fifty feet long and seventy-five feet wide. From Joliet to La Salle, it was planned to improve the river channel except around the Marseilles rapids, where a short canal would be required.

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the old antagonists were able to prevent favorable action on it during the session.

Problems incident to the closing years of the Civil War so engrossed the attention of Congress that the ship-canal project received no further consideration till 1866, when the act of June 23, directed the Secretary of War to cause a new survey of the Illinois River to be made.[1] This survey was made by General James H. Wilson, who recommended the enlargement of the Illinois and Michigan Canal to a width of one hundred and sixty feet and a minimum depth of seven feet from Chicago to Lockport. The plan provided for a channel of like capacity from Lockport to the Mississippi, by the construction of locks and dams in the Des Plaines and Illinois rivers.[2] With locks three hundred and fifty feet long and seventy-five feet wide, it was estimated that such a waterway would meet the requirements of both a commercial and naval route. It would carry the largest vessels that were capable of being operated on the Mississippi River above the mouth of the Ohio.[3] Even larger war vessels than were usable

[1] *United States Statutes at Large*, XIV, p. 74.

[2] *House Executive Document*, No. 16, 40th Congress, 1st Session, pp. 7–8.

[3] General Wilson did not deem it necessary to provide a channel of sufficient depth to float the lake steamers, because he thought them too unwieldy for use on the rivers. On the other hand, he regarded the river steamboats unsuited to use on the lakes. Since he considered a transfer of freight at Chicago inevitable, he could see no necessity for providing for a greater depth of channel.

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on the Mississippi, could be taken from the Gulf of Mexico to Lake Michigan by the use of "camels" or barges to lift them partially out of the water.[1] Concerning these improvements, estimated to cost $21,373,906,[2] General Wilson said: "I desire to state that I recommend improvements of such magnitude after the fullest consideration of the subject, believing that nothing else will answer the present and future demands of the national defense, and sufficiently provide for the immense internal commerce of the country."[3] A re-examination of the route in 1868 by General Wilson and William Gooding only confirmed the recommendation, but Congress took no steps toward accomplishing the proposed task.

While the federal government procrastinated, the state of Illinois was led to act. Many times since 1848 had the canal trustees uged the necessity of providing a channel adequate to carry canal boats to St. Louis, in order to give the canal its greatest usefulness. But not until 1867 did the General Assembly take any steps toward accom-

[1] *House Executive Document*, No. 16, 40th Congress, 1st Session, p. 7. In the Chicago Ship-canal Convention, Admiral Porter was reported as authority for the statement that the United States then had about sixty vessels capable of passing through the proposed waterway.

[2] A more careful estimate made the following year by General Wilson and William Gooding reduced the estimated cost of the improvement to $18,217,242.56.

[3] *House Executive Document*, No. 16, 40th Congress, 1st Session, p. 9.

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plishing that end, further than to occasionally memorialize Congress in behalf of the much needed improvement. By the act of February 28, 1867, however, the state inaugurated the work of improving the Illinois River channel. By means of a lock and dam at Henry and another at Copperas Creek and at a cost to the state of $747,747.51, a section of waterway, ninety-eight miles in length, was insured a channel with a minimum depth of seven feet, and capable of accommodating the largest Mississippi steamboats that could reach St. Louis during seasons of low water.[1] This section of the waterway was placed under the control of the Illinois and Michigan Canal commissioners and the schedule of tolls and lockage charges for the canal was applied to this portion of the river.

With the completion of the Copperas Creek lock and dam, in 1877 the state improvement of the river channel ceased. There were no longer

[1]On the lock and dam at Henry the state expended $400,000. On that at Cooperas Creek, the federal government expended $62,359.80 in the construction of the lock foundations and the state paid $347,747.51 to complete the work. The lock at Henry was completed in January, 1872, and that at Copperas Creek was begun September 1, 1873 and completed in October, 1877, and was formally turned over to the canal commissioners on November 8th. In order to facilitate the passage of large steamers, and in accordance with the recommendations of Preston in 1858 and Preston and Gooding in 1863 and Gen. Wilson in 1867, the locks were made 350 feet long inside the gates and 75 feet wide between the walls.

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net revenues from the Illinois and Michigan Canal which could be used for this purpose, and the General Assembly was unwilling to assume the responsibility of voting an extra tax to provide the necessary funds with which to carry on the work. The plan of improvement called for three more locks and dams. Apparently, there was no prospect of the completion of the work unless done by the federal government.

Having resurveyed the lower river, Major J. G. Lydecker, in 1880, recommended the completion of the work of improvement by the federal government, but on an altered plan. Instead of the three proposed locks and dams, he recommended two, together with sufficient dredging to insure the required seven-foot channel. The proposal was adopted and the River and Harbor act of June 14, 1880 appropriated $110,000 with which to begin the work.[1] Nine years later, October 21, 1889, the La Grange lock was opened for use, but it was not till August 30, 1893, that a steamboat passed through the lock at Kampsville. Completed at a cost of $1,145,886, these two locks opened to the Mississippi the channel improvement, which the state of Illinois had inaugurated [illegible] years before.[2]

[illegible] this sum $100,000 was to be expended on the [illegible] $10,000 in dredging. From former appropri[illegible] there was already available for dredging the [illegible].45.

[illegible] 30, 1907, the federal government had [illegible] these works and in dredging, $1,515,720.77.

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Before the completion of the Illinois River improvements, the federal government took up the project of opening a commercial waterway from the upper Mississippi to Chicago.[1] The project included the construction of a canal between the Mississippi and Illinois Rivers and the enlargement of the Illinois and Michigan Canal. In the hope that the federal government would complete the entire system of waterways from Lake Michigan to both the upper and the lower Mississippi, the state of Illinois, by act of April 28, 1882, conditionally ceded the Illinois and Michigan Canal and all its property, rights and privileges to the United States.[2] Although in 1883 an estimate was made of the comparative cost and relative advantage of the enlargement of the Illinois and Michigan Canal throughout its entire length and the alternative plan of enlarging it from Chicago to Joliet and adopting a system of channel improvement and slack-water navigation in the Des Plaines and Illinois Rivers from Joliet to La Salle,

[1]The Hennepin Canal route, having been surveyed under private auspices in 1866, was surveyed by the government engineers in 1870, 1874, 1884, and 1885–6. The surveys for the enlargement of the Illinois and Michigan Canal were largely based on those of former years.

[2]The cession was conditioned on the acceptance of the grant by the United States within five years. The grant was ratified by vote of the people of the state, November 5, 1882. The federal government failed to accept the grant, which expired by limitation, November 5, 1887.

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no steps were taken by the government toward making either improvement.[1] In 1886, Major Thomas H. Hanbury advised that the proposed enlargement and improvement in the waterway should take the form of channel improvement in the Illinois and Des Plaines Rivers to Joliet and an enlargement of the Illinois and Michigan Canal from that city to the "Sag," through which a new canal should be constructed to the Calumet and thence to Lake Michigan at the Calumet harbor, in order to relieve the congested condition of the Chicago River and harbor.

The following year, the Illinois River Improvement Convention memorialized Congress in behalf of an improvement which would furnish better water transportation facilities between the Mississippi and Chicago.[2] Urged by the commercial and shipping interests of the upper portion of the Mississippi valley, Congress directed a survey and estimates for such a channel improvement in the Illinois and Des Plaines Rivers from La Salle to Lockport, as would provide a navigable waterway not less than one hundred and sixty feet wide and fourteen feet deep. From Lockport to Chi-

[1]The survey was made by George Y. Wisner, under the direction of Major W. H. H. Benyaurd. It was estimated that channel improvements giving seven feet of water from La Salle to Joliet and with locks of the same dimensions as those on the lower Illinois, would cost $3,433,582.

[2]The convention was held at Peoria, Illinois, October 11–12, 1887.

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cago, a channel of like proportions was to be created by the enlargement of the old canal or the construction of a new one. Regarding a channel of eight or nine feet as sufficient to accommodate any vessel that could reach the mouth of the Illinois River, Captain W. L. Marshall, in charge of surveys, reported adversely on the proposed fourteen-foot channel. An eight-foot channel, one hundred and sixty feet wide, extending from the Calumet harbor to Joliet through the Calumet and Sag route and down the Des Plaines and Illinois Rivers, was recommended as preferable to the proposed improvement and as entirely adequate for commercial and naval purposes.[1]

With the question of the location and the dimensions of the eastern portion of the waterway still unsettled, the federal government entered upon the task of constructing the long projected Illinois and Mississippi Canal, popularly known as the Hennepin Canal.[2] Following the "Rock Island Route," fifty miles of canal and twenty-seven miles of slack-water in the Rock River form the steamboat route from the upper Mississippi at Rock Island to the Illinois near Hennepin.[3] A

[1] *House Executive Documents*, 51st Cong., 2nd Sess., Vol. V, pp. 2419–2452.

[2] The canal is eighty feet wide at the water surface, fifty-nine feet at the bottom, and carries a depth of seven feet of water. The locks are one hundred and seventy feet long, thirty feet wide and have a minimum depth of seven feet.

[3] From the point where the Rock River feeder enters the canal on the summit level, five routes were surveyed

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navigable feeder from the Rock River near Dixon, connects the upper course of that river with the canal on the summit level twenty-five miles from its junction with the Illinois River. So slowly was the work of construction carried forward, however, that the canal was not opened for use throughout its entire course till 1907.[1] Its construction, at a cost of more than $7,200,000, provided a waterway from the upper Mississippi to the upper Illinois, capable of accommodating barges carrying six hundred tons of freight.[2]

The completion of the Illinois River improvement and the progressing construction of the Illinois and Mississippi Canal emphasized the importance of enlarging and improving the waterway from La Salle to Chicago. Till this should be accomplished the improvements already made and

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to the Mississippi. Two of these reached the river at Rock Island, two at Watertown, and one, the Marais d'Osier route, near Albany. The route chosen was the one by way of Penny's Slough and Rock River.

[1]The work of construction was begun in July, 1892, on the canal, four and a half miles in length, around the falls in the lower Rock River, near Milan. This section of the waterway was opened for use April 17, 1895.

[2]Up to July 1, 1907, the expenditures on the canal had reached $7,188,696.87. In addition to this sum, there were outstanding liabilities to the amount of $15,000. To meet these liabilities and those which would be incurred in completing the odds and ends of the work, the sum of $305,837.55 was available from the previous appropriations. *Report of the Chief of Engineers*, 1907, pp. 637–640.

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those in progress would avail but little. The locks of the Illinois and Michigan Canal being too narrow to permit the passage of the steamers and barges which were able to reach the western terminus of the canal, a transfer of freight to canal barges or to freight cars, was rendered necessary within a hundred miles of Chicago.[1] Before the water route could again become effective for transportation purposes, it was necessary that the Mississippi River vessels should be able to discharge their cargoes at the wharves and elevators in Chicago. The most urgent problem, then, was that of enlarging the waterway from La Salle to Chicago.

Meanwhile the sanitary problem at Chicago had become a pronounced factor in the movement for a more commodious waterway. As early as 1865 the problem of sewage disposal led the city to obtain from the state the permission to lower the summit level of the canal sufficiently to insure such a flow of water from Lake Michigan as would carry the sewage from the Chicago River through the canal into the Des Plaines.[2] This improvement, completed in 1871 at an expenditure of approximately $3,000,000,[3] met the sanitary re-

[1]The locks of the Illinois and Michigan Canal being only eighteen feet wide between the chamber walls, will not permit the passage of river steamboats and barges which are built wide and shallow.

[2]Authorized by the act of February 16, 1865.

[3]After the Chicago fire in 1871, the state reimbursed the city for this expenditure to the amount of $2,955,340.

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quirements for nearly a decade. By 1881, however, the collection of debris in the prism of the canal, the lowering of the lake level, and the increasing amount of sewage to be carried, combined to render the canal ineffective as an outlet.[1] The putrid condition of the sewage laden water passing sluggishly through the canal became a menace to the health of the people living along the course of the canal and the Des Plaines and upper Illinois Rivers. To obviate this danger, the General Assembly, in 1881, required the city to re-establish the pumping works at Bridgeport in order to augment the flow of water through the canal.[2] This expedient, however, proved unsatisfactory. Local floods frequently polluted the water supply of the city by carrying the accumulating sewage from the river into the lake. As the most feasible way of solving the sanitary problem, the Sanitary District of Chicago, created by the act of May 28, 1889, abandoned the old canal and constructed the Chicago Drainage Channel, 28.03 miles in length

[1]In the decade, 1870 to 1880, the population of the city grew from 298,977 to 503,185. During the same period the stock-yards and slaughtering business also made rapid strides. The number of cattle received rose from 532,964 in 1870 to 1,382,477 in 1880, and the number packed mounted from 21,254 to 511,711, while the receipts of hogs increased from 1,673,158, to 7,059,435 and the number packed increased from 919,197 to 5,752,191. The sewage from the stock-yards and packing houses was emptied into the South branch of the Chicago River.

[2]*Laws of Illinois*, 1881, pp. 159–161.

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from the Chicago River to the Des Plaines at Lockport.[1] Varying in surface width from 164 feet in the rock sections to 300 feet in the earth portions, and carrying a depth of twenty-four feet of water at the ordinary lake levels, the Channel, together with the Chicago River, furnished an excellent beginning for the proposed deep water-way from the Lakes to the Gulf.

Since the construction of the Chicago Drainage Channel, the federal government has continued to make surveys and estimates of the cost of enlarging and improving the waterway from the terminus of this channel to the Mississippi. The most important of these surveys was undertaken in compliance with the act of June 13, 1902.[2] The plan contemplates a channel having a minimum width of two hundred feet at the bottom and fourteen feet deep.[3] It further contemplates the removal of the four dams now in the Illinois River and a combination of channel improvement and short canals from Lockport to Utica. Although bills carrying appropriations for defraying the expenses of the proposed improvement, have been introduced at almost every session of Congress since

[1]Work was begun on the canal September 3, 1892. On January 2, 1900, water was turned into the canal from Lake Michigan, and fifteen days later the bear-trap dam at Lockport was lowered and the flow from the canal to the Des Plaines began.

[2]The report of the Board of Engineers was made December 12, 1905.

[3]*House Reports*, No. 263, 59th Cong., 1st. Sess., pp. 4–5.

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the report was made, no provision has been made for the accomplishment of the work by the federal government.[1]

The state of Illinois, however, has taken up the project more seriously. Urged by the commercial interests which would be affected by the improvement, by the Chicago Sanitary District, by the Internal Improvement Commission of Illinois, by annual deep waterway conventions, and by the inhabitants of the Illinois valley, the General Assembly, by a joint resolution of October 16, 1907,[2] submitted to a referendum vote, a proposed amendment to the constitution of the state authorizing the issue of state bonds to the amount of $20,000,000 for the purpose of obtaining funds with which to complete the improvement from the western terminus of the Chicago Drainage Canal to Utica, and to construct power plants for the utilization of the potential power created by the waterway.[3] The proposition was adopted

[1]The joint resolution of April 21, 1904, authorized the lowering of the dams at La Grange and Kampsville. *U. S. Statutes at Large* Vol. 33 p. 589. These were lowered with the permission of the Secretary of War, and under conditions prescribed by him, with the concurrence of the Chief of Engineers, and at the expense of the Sanitary District.

[2]*Laws of Illinois*, Adjourned session, 1907-1908, pp. 102-103. A survey of the deep waterway was authorized by the act of June 3, 1902. *U. S. Statutes at Large*, vol. 32, pt. I, 364.

[3]The original plan contemplated a channel improvement in the Des Plaines River from the present

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at the general election on November 3, 1908, by a vote of 692,522 to 195,177.

The possibilities of electrical power development along the line of the proposed improvement was one of the strong factors in leading the state to so extensive an undertaking. The region is rich in electrical possibilities and the market for the power is close at hand. The plan for the waterway, therefore, includes the construction of four state-owned power plants with an aggregate capacity of 140,000 horse power.[1] It is estimated that

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terminus of the Drainage Canal above the city of Joliet to the junction of the Des Plaines with the Kankakee in forming the Illinois. Because of the complications growing out of the "Dresden Heights dam" lease, two alternative plans have recently received consideration. The first is to enlarge the Illinois and Michigan Canal from the place where it crosses the Des Plaines River to a point below Dresden Heights and there enters the Illinois River. The other is to extend the Drainage Canal through the eastern part of the city of Joliet and follow the general course of the Des Plaines, but, keeping to the east and south of it, to enter the Kankakee near its mouth, following this stream to the Illinois. The report of the Illinois Internal Improvement Commission, however, submitted on March 1, 1909, adheres to the original plan.

[1]The four proposed plants are to be located as follows:

Brandon's Road, 24-ft. head.....	38,182 horse power
Big Dresden Island, 18-ft. head..	28,636 horse power
Bell's Island, 26-ft. head.....	41,364 horse power
Utica, 20-ft. head.....	31,818 horse power
Total.....	140,000 horse power

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this amount of electrical power would carry the interest charge on the cost of construction, pay the cost of operation and maintenance, and provide a sinking fund with which to finally extinguish the entire debt.[1] Thus the sanitary necessities of Chicago and the seeming possibility of defraying the cost of the extension through the created power apparently carried the project for an enlarged and improved waterway from the Great Lakes to the Gulf of Mexico, appreciably nearer to consummation.

However, the authorization of the bond issue did not clear the way for immediate accomplishment of the plan. Legal complications delayed the beginning of the work. Meanwhile, a change of administration placed the control of the project in the hands of men who thought a less ample and less expensive channel would be entirely adequate both for the needs of commerce and for the development of water power. In keeping with this view the Illinois Waterway Commission was created and authorized to expend $5,000,000 in making the improvement.[2] The new plan contemplates a channel depth of eight feet, instead of

[1]The results of the operation of the power plant of the Drainage District would seem to confirm the estimates of the advocates of a deep waterway financed by this method. On a production of a little more than 30,000 horsepower the District derived $804,934.92 in 1912 and $812,934.86 in 1913, from the sale of electrical current.

[2]*Laws of Illinois*, 1915, pp. 18–35.

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the fourteen feet contemplated when the $20,000,000 bond issue was authorized. In fact, this plan is substantially a revision of the Marshall plan of 1889 with the upper sections eliminated as unnecessary since the construction of the Chicago Drainage Canal. The reasons for the reversion to the shallower channel seem to be that, first, the deeper channel down to Utica would be of little practical value unless carried on to the mouth of the Mississippi, or, at least, to St. Louis. There is no assurance that this would be done at an early date, if ever. Secondly, that the shallower channel would secure many of the advantages that could be secured by the deeper one and at a much less cost.[1] With either channel the Mississippi steamers could ply between New Orleans and Chicago, connecting both cities with those on the Illinois, the Mississippi, and the Ohio and usually with those on the Missouri, as far up as Kansas City. The shallower channel, however, would preclude all possibility of the lake vessels and sea-going vessels using the waterway.[2] With the

[1]Development of the waterway on the new plan has been stopped at least temporarily, by a court injunction. The restraining order was issued by Judge Norman S. Jones of the Sangamon County Circuit Court, on January 29, 1916, on a complaint of William A. Hubbard, a member of the General Assembly. An appeal was taken to the Supreme Court, where the case was reversed and remanded to the Circuit Court with instructions to dismiss.

[2]Mr. Joy Morton, President of the Morton Salt Company, is of the opinion that in the shipments of

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shallower channel practically none of the lake vessels could be used below Joliet. The deeper channel would be usable by probably one-fourth, or more, of the vessels entering the Chicago harbor.[1] It is entirely possible, also, that if the waterway had a twelve or fourteen foot channel, more lake boats would be built of a capacity to use it. It is not probable that many would be built small enough to use the eight foot channel. They would not be practicable for lake service.

The completion of the waterway to Utica, if the larger plan be followed, would open to the navigation of the smaller lake vessels ninety-one of the three hundred and twenty-one miles intervening

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salt, it would be cheaper to transfer the cargoes at Chicago than to send the more expensive boats and larger crews on a slow journey through the canal, even if the depth of channel were ample. He says: "If we had a canal 14 ft. deep or even 20 feet deep, we could not afford to send our lake boats inland, partly on account of the necessary canal speed regulation, but chiefly because of their much greater construction cost per ton of cargo capacity and the fact that they are obliged to carry a larger crew than a canal boat; and for the further reason that a transfer of cargo at the Lake harbor can be accomplished by present unloading facilities so cheaply that it would not pay to send a Lake carrier into the canal."

[1]In 1901, out of a total tonnage of 4,244,498 tons, only two-tenths of one per cent had a draft of nine feet or less. Fifteen per cent had a draft of twelve feet or less and thirty-five and eight-tenths had a draft of fourteen feet or less. *House Document No.* 263, 59th Congress, 1st Session, p. 13.

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between the Chicago River and the Mississippi. This section is by far the most expensive portion of the route. If this portion were completed at an expenditure of more than $70,000,000 by the Sanitary District and the State of Illinois,[1] the advocates of the deep waterway confidently believe that the federal government would appropriate the $10,000,000 or $11,000,000 necessary to carry the fourteen foot channel to the St. Louis harbor.[2] However, should the other plan prevail and consequently the lake vessels be unable to use the waterway, Chicago would necessarily become the transfer point for the Mississippi steamers and the lake vessels. In either case, the traffic on the waterways would be greatly increased. There is no doubt that the larger and deeper channel would carry the larger commerce, possibly not proportionately larger as compared to the greater initial outlay, but the indirect benefits would no doubt at least partially make up the difference.

The steps already taken have given a renewed impetus to the scheme for the development of a great system of interior waterways. The progress-

[1]The expenditures of the Sanitary District on the Drainage Canal, up to December 31, 1906, amounted to $52,698,024.98.

[2]The board of engineers which made the survey under a provision of the act of June 13, 1902, estimated that the projected fourteen foot waterway from Lockport to the mouth of the Illinois River would cost $23,543,582. The Mississippi River Commission estimated the cost of the proposed improvement from the mouth of the Illinois to St. Louis, at $6,553,880.

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ing enlargement of the Erie Canal, giving as it will improved facilities for eastern trade, lends added importance to such a system. The inability of the railroads to serve adequately the public needs for transportation facilities during the last few years has added still further weight to the arguments advanced in favor of such a work. Neither are the possibilities of future development of trade between the interior and the Orient through the Panama Canal forgotten.

The completion of the section of the waterway which Illinois has undertaken, would still leave to the federal government the improvement of the Illinois River channel from Utica to the Mississippi and considerable improvement in the latter stream, in order to provide a satisfactory channel from the Lakes to the Gulf. It is to the construction of this section of the work that the federal government is now being urged.

The completion of the proposed improvement would mean the abandonment of the Illinois and Michigan Canal, or those portions of it not incorporated into the larger waterway. This would, however, be in keeping with the purpose which led to the original construction of the canal and to the persistent efforts for such improvement of the entire waterway as would enable it to meet the constantly increasing demands made upon modern transportation agencies. It would be only another of the long series of efforts to maintain an effective route for water transportation through the interior of the country and between the "inland seas"

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and the ocean commerce. To this series of efforts, the federal government, the state of Illinois, the municipality of Chicago, and the Chicago Sanitary District have contributed in a financial way. The interests of trade, of sanitation, of industrial development, and, perhaps of ambition, have furnished the incentive and the stimulus. The completion of the project of a deep waterway from the Lakes to the Gulf, adapted to the standards of the twentieth century, rests, at present, with the federal government. Despite the conflict over the project there is little doubt that the state of Illinois would readily develop the waterway down to Utica on as large a scale as the federal government would carry it on to the Gulf. Part of the indifference, if not of the active opposition, to the fourteen foot channel is due to a belief that its effects would be neutralized by the shallower channel below. There can be no doubt of the ultimate enlargement of the waterway at least down to Utica, but whether that enlargement shall take the form of the fourteen foot channel or one of less proportions only future developments can determine.

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Chapter VI

CONCLUSION

The Illinois and Michigan Canal has played a notable part in the history of the state. The project for its construction grew out of the well recognized importance of the development of commercial routes between the Mississippi valley and the Atlantic seaboard cities that would materially lessen the excessive economic burdens of transportation. In the effort to establish such "through routes" the construction of a canal was proposed at almost every portage from western Pennsylvania to the Fox and Wisconsin Rivers. Physiographically, the Chicago portage offered the most feasible place for an artificial connection between the Great Lakes and the Mississippi system. The necessary length of a canal across this portage would not be great. The elevation to be overcome was less than elsewhere. The available water supply was abundant. No other proposed route possessed all these advantages. Despite these advantages, however, the project languished till the construction of the Erie Canal provided for the commerce of the lake region a more direct and inexpensive route to the Atlantic coast markets than was furnished by the St. Lawrence, and till the admission of Illinois to the Union

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and the increasing population of this and neighboring states provided a local interest in the construction of the proposed canal, and consequently furnished a persistent and effective demand for it.

It was due to the financial difficulties which beset the young state that more than a score of years were permitted to elapse after the land grant by the federal government, before a cargo of freight passed through the canal. These difficulties were augmented by the unwise extension of other internal improvement schemes in the state, by the financial panic of 1837, and by the failure of the State Bank of Illinois in 1842. Itself the cause of more than one-third of the enormous debt which threatened to drive Illinois into bankruptcy and repudiation, the canal furnished the means of escape from impending financial ruin.

While the canal played an important part as a commercial route between the East and the West before the rise of railroad transportation, its influence on the economic development of the region adjacent to it was even more marked as is attested by the growth of population, industry, and commerce in that portion of the state, in the quarter of a century from 1830 to 1855. It not only transformed a wilderness into a settled and prosperous community, but it made Chicago the metropolis of the Mississippi valley. For half a century the influence of the canal was felt as a transportation route and as a freight rate regulator. But this influence was gradually undermined, first, by the unsatisfactory condition of the Illinois river chan-

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nel during a portion of almost every year and by the delay of the state and federal governments in relieving these conditions. Secondly, by the increasing inadequacy of the canal to meet the growing demand of an enlarging commerce and thirdly, by the ever increasing efficiency of the competing railroad service.

An agitation seven decades long, for an effective waterway from Lake Michigan to the Mississippi has resulted in a river channel improvement inadequate for present commercial needs and a canal from the upper Mississippi to the upper Illinois, the traffic of which can not reach Chicago without the expense and delay incident to a transfer of cargo. The sanitary necessities of Chicago, however, having led to the construction of the most expensive portion of a deep waterway of sufficient dimensions to meet the needs of twentieth century commerce, and the state of Illinois having become thoroughly interested in the project and committed to an important extension of the work already done, the probability of the completion of an effective route for water transportation between the Great Lakes and the Gulf of Mexico appears less remote than at any previous time since the movement for such route began. In fact the only probable cause for failure would seem to lie in the divided counsels of the advocates of the waterway.

The enlargement of the Erie Canal, making it possible for freight to pass between New York and Chicago without transfer, has given a new impetus to the movement for a similar enlargement

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of the waterway from the Lakes to the Gulf. Relatively, however, such a waterway would be of less importance as a traffic agency than before the development of railroad transportation. That it would still influence local freight rates along its course, there can be little doubt. Possibly it might cause a readjustment of rates over a wide region wherever the waterway should come into competition with railway traffic. As a transportation agency, it would carry low class freight, such as coal, grain, lumber, and other products of the mine, the forest, and the field. Even the coarser products of the manufacturing establishments might also be carried by water instead of by rail. But the experience of the old canal would indicate that as adequate terminal facilities must be provided along the waterway as along the railways, if the traffic is again to turn to barge instead of to railway train. The opening of the Panama Canal has added still further to the importance of a waterway from the Lakes to the Gulf, of sufficient capacity to carry effectively and economically the enlarging commerce of the Mississippi valley. In the past, the transportation problems have mainly centered about the efforts to reach the eastern markets. Henceforth, the problems incident to the Gulf trade will claim a larger share of the attention of transportation men and the public, as may also the trade between the interior and the Pacific coast and the Orient. In the traffic from the Great Lakes to the Gulf, the deep waterway would be as conspicuous a factor as the Erie Canal has been in

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the traffic from the Great Lakes to the Atlantic, and as it promises to become again as a barge canal.

The present movement for a deep waterway from Lake Michigan to the Gulf of Mexico is the direct outcome of well nigh a century of effort to furnish a continuous water transportation route from New York to New Orleans by way of the Great Lakes and the Mississippi. In this century-long movement the Illinois and Michigan Canal has played a worthy part, but the progress of the last half century has rendered it ineffective. Like an out of date machine, it must be replaced by one better adapted to present needs and conditions. But when the deep waterway shall have become a reality, it will follow the route of the old Illinois and Michigan Canal and it will perform the functions so long performed by that historic highway of commerce.

In final analysis, the significance of the Illinois and Michigan Canal has been two-fold. In the first place, its influence on the economic development of the region adjacent to it probably surpassed the local influence of any other American canal except the Erie. Secondly, the present movement for a Lake-to-the-Gulf deep waterway is the logical outgrowth of the long-continued efforts to render the canal and its river connection effective in meeting the continually enlarging demands made upon them. Had this canal never been constructed, there is little probability that the deep waterway proposition would now be seriously considered. No small part of the strength of the present movement is due to its historical antecedents.

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APPENDICES

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Appendix I

TOLLS, EXPENDITURES AND TONNAGE OF THE ILLINOIS AND MICHIGAN CANAL

Year	Gross expenses	Tolls	Tons Transported[1]
1848	$48,197	$87,890	.....
1849	70,932	118,375	.....
1850	68,415	125,504	.....
1851	58,475	173,300	.....
1852	53,508	168,577	.....
1853	44,870	173,372	.....
1854	53,242	198,326	.....
1855	70,873	180,519	.....
1856	91,458	184,310	.....
1857	103,282	197,830	.....
1858	58,088	197,171	.....
1859	74,432	132,147	.....
1860	82,583	138,554	367,437
1861	55,061	218,040	547,295
1862	55,362	264,647	673,590
1863	62,715	210,386	619,599
1864	66,107	156,607	510,286
1865	124,869	300,810	616,140
1866	116,363	302,958	746,815
1867	162,656	252,131	746,815
1868	122,052	215,720	737,727
1869	91,765	238,759	817,738
1870	108,695	149,635	585,970
1871	97,232	159,050	628,975

[1]Statistics of the tonnage before 1860 are not available.

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Year	Gross Expenses	Tolls	Tons Transported
1872	$88,876	165,874	783,641
1873	81,088	166,641	849,533
1874	73,798	144,831	712,020
1875	74,511	107,081	670,025
1876	91,595	113,293	691,943
1877	110,018	96,913	605,912
1878	82,330	84,330	698,792
1879	97,701	89,065	669,559
1880	125,601	92,296	751,360
1881	108,223	85,130	826,133
1882	104,412	85,947	1,011,287
1883	116,756	77,975	925,575
1884	99,289	77,102	956,721
1885	86,393	66,800	827,355
1886	72,430	62,516	808,019
1887	71,385	58,024	742,074
1888	76,845	56,028	751,055
1889	85,478	60,605	917,047
1890	75,125	55,112	742,392
1891	72,592	49,557	641,156
1892	67,137	54,937	783,288
1893	59,522	38,702	529,816
1894	54,258	44,928	617,811
1895	71,142	39,106	591,507
1896	77,987	32,100	446,762
1897	68,307	33,065	484,575
1898	78,986	38,570	395,017
1899	91,196	41,021	469,352
1900	88,317	13,867	121,759
1901	111,002	8,120	81,456
1902	127,150	2,879	35,824
1903	52,400	5,857	62,894
1904	42,761	6,743	47,616
1905	50,890	4,950	38,820
1906	48,523	5,358	35,480
1907	50,050	2,126	80,616

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Year	Gross Expenses	Tolls	Tons Transported
1908	60,345	2,985	312,500
1909	48,294	2,170	352,600
1910	57,938	3,754	374,500
1911	39,877	2,816	362,652
1912	49,523	1,875	384,729
1913	49,103	2,712	395,654
1914	45,955	3,292	487,328
1915	35,756	1,336	358,550
	$5,391,107	$6,631,007	74,031,104

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Appendix II

LIST OF OFFICERS AND AGENTS EMPLOYED BY THE BOARD OF CANAL COMMISSIONERS

November 30, 1915

R. F. Burt, general superintendent; salary, *$2,500.00; began Feb. 1, 1914.

John K. Monahan, chief clerk; salary, *$2,400.00; began July 22, 1912.

Margaret O'Brien, assistant clerk and stenographer; salary, *$780.00; began Nov. 1, 1908.

W. A. Panneck, attorney; salary, *$2,500.00; began Aug. 5, 1913.

H. M. Coulehan, assistant treasurer; salary, *$360.00; began Oct. 1, 1914.

W. E. Hemmerle, collector tolls at Ottawa; salary, *$900.00; began Dec. 7, 1913.

Elias B. Wright, collector tolls at Henry; salary, *$900.00; began Oct. 24, 1913.

Wm. H. Richards, collector tolls at Copperas Creek; salary, *$900.00; began July 3, 1915.

James T. Walsh, assistant superintendent; salary, *$1,500.00; began Jan. 3, 1914.

Thos. Coyne, locktender No. 1; salary, †$35.00; began Jan. 16, 1914.

Michael McFadden, locktender No. 5; salary, †$50.00; began Oct. 21, 1913.

Wm. Brannick, locktender Nos. 6 and 7; salary, †$50.00; began Oct. 1, 1913.

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* Per annum.

† Per month.

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Wm. Wood, locktender No. 8; salary, †$35.00; began Oct. 1, 1913.

Timothy Driscoll, locktender Nos. 9 and 10; salary, †$50.00; began Mar. 1, 1914.

Mrs. Geo. Funk, locktender, No. 11; salary, †$35.00; began Feb. 17, 1896.

Michael Looney, locktender No. 12 salary, †$35.00; began April 1, 1913.

Chas. Hasenkamper, locktender No. 13; salary, †$35.00; began April 1, 1914.

John Roach, locktender Nos. 14 and 15; salary, †$50.00; began Dec. 15, 1913.

Chas. Carrier, locktender at Henry; salary, ‡$40.00; began July 1, 1912.

Chas. Tompkins, locktender at Copperas Creek; salary, ‡$40.00; began Dec. 16, 1914.

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† Per month.

‡ Per month during navigation.

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Appendix III

ILLINOIS AND MICHIGAN CANAL TOLLS AND LOCKAGE CHARGES, 1848 & 1915

Tolls upon the Illinois and Michigan Canal for the year 1848.

1. Rates of Toll on Boats.

	Cents	Mills
On each boat used chiefly for transporting common freight, 3½ cents per mile	3	5
On each boat used chiefly for transporting mineral coal, 3 cents per mile	3	..
On each boat used for transporting passengers, 6 cents per mile	6	..

2. On Passengers.

On each passenger 8 years old and upwards, 4 mills per mile	0	4

Note. Each passenger 8 years old and upwards shall be allowed 60 pounds baggage or household furniture (if belonging to or used by such passenger) free of toll.

3. On the following named articles, toll is computed according to weight — that is to say, the following rates per mile are charged on each 1000 pounds, and in the same proportion for a lesser or a greater weight:

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	Mills
Ale	10
Agricultural implements	10
Animals, domestic	10
Anvils	15
Ashes, wood	4
Beef	8
Beans	10
Bread	10
Beer	10
Butter	10
Baggage	20
Beeswax	10
Bacon	8
Brooms	10
Broom handles	10
Broom corn	10
Bristles	10
Buhr blocks	12
Barley	10
Buckwheat	10
Blooms	15
Bran	5
Bark, tanners'	5
Barrels, empty	10
Coffee	12
Crockery, in crates	15
Cheese	10
Crackers	10
Cordage	10
Cotton, bagging	10
Cotton, raw in bales	10
Coopers' ware	10
Carpenters' and joiners' work	10
Carriages	10
Candles	10
Corn	3
Cider	8
Clocks	20
Charcoal	5
Coal	1
Coke	2½
Clay	2
Eggs	10
Flour	7½
Flax	10
Fruit, home	10
Fruit, foreign	15
Fish	10
Furniture, household	20
Feathers	15
Flags, for chairs	15
Furs and peltries, all kinds	25
Grease	7
Ginseng	10
Grindstones	6
Gypsum	6
Glass and glassware	15
Hemp	7½
Hides	10
Horns and tips	10
Hair	10
Hoops	15
Hams	10
Household furniture, accompanied by and belonging to families emigrating	15
Hay and fodder	5
Heading	3

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	Mills
Hoops, and materials for	3
Hobs, boat knees and bolts	2
Iron, pig and scrap	7½
Iron, wrought or cast	12
Iron tools	15
Ice	1
Leather	15
Lard	8
Lime, common	3
Lime, hydraulic	3
Lead, pigs and bars	1
Merchandise, including dry goods, groceries, hardware, cutlery, crockery, and glassware, and all other articles not specified	15
Manilla	10
Molasses, in hogsheads or barrels	12
Malt	7½
Meal	5
Marble, unwrought	6
Marble, wrought	15
Marble dust	9
Millstones	12
Machinery	12
Mechanics' tools	15
Manure	3
Nuts	9
Nails	12
Oats	3
Oil cake	6
Oil, linseed and corn	12
Oil, lard	10
Ore	3
Peas	10
Provisions, salt and fresh	10
Pork	8
Pot and pearl ashes	10
Porter	10
Palm leaf	10
Potter's ware	10
Pitch	10
Potatoes, and other vegetables	6
Paper	15
Powder	15
Rags	9
Rosin	9
Rye	6
Salt	6
Seeds	10
Saleratus	10
Salts of lye	10
Soap	10
Sumach	10
Sugar	12
Skins, animal	10
Sleds and sleighs	10
Saddle trees	10
Shorts and screenings	5
Ship stuff	5
Spikes	12
Starch	10
Shot	10
Steel	15

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	Mills		Mills
Spirits, except whiskey	25	Tobacco, not manufactured	7½
Straw	4	Tobacco, manufactured	15
Staves	3	Veneering	10
Sand, and other earths	2	Vinegar	10
Stone, cut and sawed	3	Wheat[1]	7
Tallow	8	Whiskey and high-wines	10
Tar	10	Wool	10
Tombstones, not marble	6	Wooden ware	10
Trees, shrubs, and plants	6	Wagons and other vehicles	10
		White lead	15

4. On the following named articles toll per mile is computed by number or measure.

	Cents	Mills
On each 1000 ft. (board measure) of lumber per mile	1	
On each 100 cubic ft. of timber, hewed or round, if transported in boats	1	...
On same, if transported in rafts	2	...
On each 1000 brick	1	...
On each 1000 laths or shingles	.	2½
On each 100 split posts or rails for fencing	1	...
On each cord of wood for fuel	1	2
On each cubic yard (27 cubic ft.) dressed stone	.	5
On each cubic yard (27 cubic ft.) undressed stone	.	2

In ascertaining the amount of toll chargeable on any article, the weight of the cask, box, bag, crate,

[1]During the months of October and November, 1848, this rate was reduced to 5 mills per mile per 1000 pounds.

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vessel, or thing, in which said article is contained, is added to the weight of the article itself, and the toll computed accordingly.

If two or more articles, chargeable with different rates of toll, be contained in the same cask, box, or vessel, the whole is charged with the highest rates of tolls chargeable on any article so contained.

The rafting of timber on the Canal or the feeders is prohibited, unless by written special agreement with the Superintendent of the Canal. Any violation of this order subjects the person violating it to a penalty of ten dollars for every such offence.

Illinois and Michigan Canal Tolls, 1915

The following rates of tolls and lockage on the Canal and at the locks at Henry and Copperas Creek in the Illinois River, adopted by the Board of Canal Commissioners in 1914, are still in force.

By Resolution of the Board of Canal Commissioners, Adopted on April 2, 1914, to Take Effect on and after April 15, 1914.

All boats without cargo shall pay as tolls on the canal at the rate of three cents (3c) per mile between the Deep Lock at Joliet and La Salle, Illinois, a distance of sixty-three (63) miles, and the same rate to and from all intermediate points. Where boats lock from Deep Lock into or out of the Drainage Channel from or to Joliet a charge of fifty cents (50c) lockage each way shall be made.

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Articles	Through Freight Tolls in mills	Local Freight Tolls in mills	Lockage Lockage in cents
Barbed wire	3/4	3/4	3
Bark, tanners'	1	1	1 1/2
Barley	9/16	3/4	1 1/2
Barrels, empty	2	2	3
Beans	1	1	3
Bran	1	1	3
Buckwheat	9/16	3/4	1 1/2
Charcoal	1	1	3
Clay	1/4	3/4	3
Coal, per ton per mile	1/2	1/2	3
Coke	1/4	1/4	3
Corn	1	1	3
Drainage pipe	1	1	3
Flour	1	1	3
Furniture, household	2	2	3
Hay and fodder	1	1	3
Hemp	1	1	3
Hoops and material for	1	1	3
Hubs, boat knees and bolts	1	1	3
Ice	1 1/2	2	1 1/2
Iron, pig, scrap and railroad	3/4	3/4	2
Iron, wrought and cast	1	1	3
Iron ore	1/2	1/2	2
Land plaster, bone dust and super-phosphate	1	1	1
Lead, pipe, sheet and rool, pigs and bars	1	1	3
Lime, common	1	1	2
Lime, hydraulic	1	1	2
Machinery	2	2	3
Meal	1	1	3
Merchandise (including hardware, dry goods, cutlery, groceries, crockery and other articles not specified)	1	1	3

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Articles	Through Freight Tolls in mills	Local Freight Tolls in mills	Lockage Lockage in cents
Oats	9/16	3/4	1 1/2
Rye	9/16	3/4	1 1/2
Salt in sacks and barrels	1	1	2
Sand and other earth	1/2	1/2	1
Seeds	1	1	3
Ship stuff	1	1	3
Shorts and screenings	1	1	3
Staves and headings	1	1	3
Wheat	9/16	3/4	1 1/2
Zinc spelter	1	1	3

On the following articles toll per mile and lockage will be computed by number and measures,

Articles	Through Freight Tolls in mills per mile	Local Freight Tolls in mills per mile	Lockage Lockage in cents
On each 1,000 feet of lumber	..	5	5
On each 1,000 feet of dressed flooring	..	4	5
On each 1,000 feet of siding	..	2	2 1/2
On each 1,000 feet lath	..	1	1 1/4
On each 1,000 shingles	..	1/2	1
On each 1,000 brick	2	2	5
On each 1,000 split posts (not over 5 inches in diameter) or fence rails	3	4	5
On each 500 railroad ties	15	20	8
†On each cord of wood or fuel	8	10	8

†Provided that on wood transported over 25 miles, the toll shall not exceed 25 cents per cord. All timber on boats shall be taken board measure.

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Article	Through Freight Tolls in mills per mile	Local Freight Tolls in mills per mile	Lockage Lockage in cents
*On each cubic yard (27 cu. ft.) dressed or sawed stone.....	7	8	15
*On each cubic yard (27 cu. ft.) rubble stone.....	4	5	10
*On each cubic yard (27 cu. ft.) dimension stone.....	6	8	15
*On each cubic yard (27 cu. ft.) macadam stone.....	2	2	9
Passengers (each round trip of 25 miles or less on canal) 2½ cents each.....	..	...	5

On lumber shipments from Chicago to points named below, the following rates of toll will be charged. ††

From Chicago To	Articles 1000 Feet of Lumber Cts.	1000 Feet of Dressed Flooring Cts.	1000 Feet of Siding Cts.	1000 Lath Cts.	1000 Shingle Cts.
Lemont.....	10	8	4	2	1
Lockport.....	12	9.6	4.8	2.4	1.2
Joliet.....	13	10.4	5.2	2.6	1.3
Bird's Bridge....	14	11.2	5.6	2.8	1.4
Channahon.....	15	12	6	3	1.5
Morris.....	17	13.6	6.8	3.4	1.7
Seneca.....	18	14.4	7.2	3.6	1.8
Marseilles.....	19	15.2	7.6	3.8	1.9
Ottawa.....	20	16	8	4	2
Utica.....	22	17.6	8.8	4.4	2.2
La Salle.....	23	18.4	9.2	4.6	2.3
Henry and below.	16	12.8	6.4	3.2	1.6

*Provided that on stone transported over 25 miles, the toll shall not exceed 12½ cents per cubic yard on macadam and rubble, and 25 per cent per cubic yard on dimensions and dressed or sawed stone.

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"Through freight" is that which is cleared from Copperas Creek or Henry to Chicago, or from Chicago to Henry or Copperas Creek.

"Local freight" includes all other freight.

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††Provided that on lumber cleared to the same point, 100,000 feet shall be considered a full canal boat load—all over that free of toll. Flooring, siding, lath, and shingles to be figured on the same basis.

Provided that on clearances from Chicago to Copperas Creek, or from Copperas Creek to Chicago, the lockage on boat and cargo shall be one-half the above rate of each lock, provided the cargo is not transferred before reaching destination as cleared.

Provided that boats passing both locks in the Illinois River shall be charged one-half the above rate of lockage at each lock, on cargo, but shall pay the straight lockage charge on boats at each lock.

Boats entering the canal at La Salle, and passing out again without proceeding as far as Ottawa, shall be charged $1.00 each, if the toll on boat and cargo at above rates should not amount to $1.00.

The weight of a box, crate, vessel, or thing in which any article may be contained, shall be added to the weight of the article itself and toll computed accordingly.

Duplicate bills of lading required in all cases, one to be deposited with the collector to whom toll or lockage is paid.

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Appendix IV

The results of the latest efforts to use the old canal as a practicable transportation agency are given in the following letter and the accompanying statement of operations of the Morton Salt Company. The letter also clearly states Mr. Morton's attitude toward the two rival projects for an enlarged and improved waterway.

11–15–1915

Lieut. Col. W. V. Judson,
Corps of Engineers,
U. S. Engineers' Office,
Chicago, Illinois.

Dear Sir: In urging your approval of the plans for the construction of the Illinois waterway, as authorized by the act of the State Legislature, approved May 27, 1915, I beg to report the practical results attained by this Company in three years' operation of three old canal boats running between Chicago and Davenport, Iowa, via the Illinois and Michigan and Hennepin Canals and their Illinois River connection.

The idea of utilizing the existing waterways for the transportation of salt from Chicago to the west bank of the Mississippi River, occurred to us in the Spring of 1912, the intention then being to

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try and get one boat through to the Mississippi River merely as an experiment. The result of the first voyage was more satisfactory than we had anticipated, notwithstanding there was but little water in the old canal and under the advice of an experienced canal man, we put a very small cargo in the boat, because of the shallow depth of the old canal.

The boat, the "Peerless," left Robey Street, Chicago, at 5:00 o'clock on the afternoon of June 1, 1912, arriving at Lockport at 9:45 P. M.

Left Lockport June 2nd at 6:15 A. M. and arrived at Morris, Illinois, at 5:55 P.M.

June 3rd, left Morris at 6:00 A.M. and arrived at Marseilles at 7:25 P.M.

June 4th, left Marseilles at 6:12 A.M. and arrived at Lock No. 11 at 4:55 P.M.

June 5th, left Lock No. 11 at 5:50 A.M. and arrived at the Illinois River at 3:35 P.M.— almost four days from Lockport to La Salle — a distance of sixty-three miles.

Arrived at Marquette for coal at 5:15 P.M. Had to wait there because the U. S. Steamer "Marion" was coaling.

June 6th, left Marquette at 7:45 A.M. and arrived at the Illinois and Mississippi Canal at 8:30 A.M. Passed through Lock No. 1 at 8:40 to 8:50 A.M.; passed the ten-mile post at 1.28 P.M.; reached the 19-mile post at 6:50 P.M., having passed through twenty-one locks in about ten hours.

June 7th, the "Peerless" arrived at Lock No. 29 at 6:15 P.M. and passed into the Rock River, where

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it met the Government Pilot sent there on the order of Major Keller.

June 8th, left Milan at 8:33 A.M. and passed through Lock No. 37 into the Mississippi River and down the River to Muscatine, at a speed of twelve miles per hour, arriving at Muscatine at 12:40 P.M.

This trip was accomplished by a very old, wooden boat, in poor condition. We had to keep her pumps going all the way to keep her afloat. Under the circumstances, we were so encouraged by the remarkable trip she made that we had the boat repaired and secured another old steamboat, the "Niagara," and also the only canal tow-barge that was available, and put all three to carrying salt to Davenport, which, we found, would be a better terminus for us than Muscatine. These boats were kept in the trade during the summers of 1912, 1913, and 1914, except during the period of the break at Mineral on the Hennepin Canal in 1912, and a statement of their operations is hereto attached. Their trip movement shows 54 loads and 6 trips light west bound; 40 loads and 19 trips light east bound; or a total of 119 one-way trip loads — 79% loads and 21% light.

The capacity of the boats was 150 to 175 tons of cargo, but, owing to shallow water in the Illinois and Michigan Canal, we were able to load an average of only 97 tons per boat; whereas, had we had a draft of 4′ 8″, which is the normal draft in the Illinois and Michigan Canal, we could have carried easily 150 tons to the load. Had our 94

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loads been of 150 tons, we would have carried 14,100 tons instead of 9,134 tons, and the operating cost would not have exceeded $1.17 per ton, or 63c per ton less than it actually cost, on account of shallow water in the Illinois and Michigan Canal, and the condition of the antiquated boats we were compelled to use — boats that were more than forty years old and the only survivors, so far as we could ascertain, of the big fleet that once navigated the Illinois and Michigan Canal, and two of these boats were fished out of the bottom of the Illinois River to be put into this service.

After careful investigation, we are confidently of the opinion that a motor canal boat of 150 tons capacity, i. e., the same size as the three boats we used and drawing 5-ft. of water, could have made the 119 trips loaded to capacity and made a good profit in the operation at a freight of 80c per ton; whereas a motor canal boat of maximum capacity to pass through the present locks of the Hennepin Canal, say 30 x 155 ft., would easily carry 700 tons from Chicago to Davenport for less than 50c per ton, after making full allowance for interest and depreciation on the boat.

The success of these pioneer operations in the establishment of a through line from Chicago to the Mississippi River, via existing waterways, was handicapped not only by the old boats, but because there were no loading and unloading facilities on the Mississippi River nor along the line of the canals in Illinois. Our boats were long delayed in discharging their cargoes on the Iowa

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side of the Mississippi and there were few elevators along the line of the canal suitable for loading grain. Some of our loads of grain were taken from farmers' wagons through holes in bridges across the canal, and by other make-shift arrangements — all of which greatly delayed the boats, but the fact that when the boat was loaded and had water enough to float it, we made excellent time and conveyed freight at very reasonable cost, convinced us that the operation of canal boats across the State of Illinois, in a waterway of sufficient capacity to accommodate a power boat towing a barge which, together, could carry as much freight as a railroad freight train, is entirely feasible, profitable, and expeditious — our conclusions as to the latter having been made from the fact that every autumn during the three years we operated, we were able to deliver grain from point of shipment to the Chicago elevators quicker than it was delivered from the same points by rail, and much of the grain we carried was so carried because there were no cars available for shipment on account of the annual congestion in the railroad yards at Chicago, which, of course, did not affect the delivery of grain to elevators by canal boats.

We have, for many years, operated a line of Lake boats, and, prior to this experience on the Canal, were inclined to favor the proposed 14-ft. waterway, but now we have learned that, even if we had a canal 14-ft. deep or even 20-ft. deep, we could not afford to send our Lake boats inland

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— partly on account of the necessary canal speed regulations, but chiefly because of their much greater construction cost per ton of cargo capacity and the fact that they are obliged to carry a larger crew than a canal boat; and for the further reason that a transfer of cargo at the Lake harbor can be accomplished by present unloading facilities so cheaply that it would not pay to send a Lake carrier into the canal. Besides, loading and unloading facilities adequate for prompt handling of modern *canal* boats can be built at a comparatively small cost any place along the canal; whereas, the facilities necessary to handle Lake boats are *very* expensive.

Our experience leads us to the conclusion that a wide canal, with 8-ft. depth of water, is desirable as compared with a narrow waterway of greater depth. We *must* have boats of sufficient cargo capacity to compete with freight train loads, instead of freight car loads, and we prefer to get such capacity through increasing the beam of the boat, rather than the depth of the hold.

Yours truly,
MORTON SALT COMPANY,
By Joy Morton, *President.*

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Statement of Movement of Morton Salt Company's Canal Boats on Illinois & Michigan and Hennepin Canals, 1912–1913–1914.

			From	To
1912	12 loads	salt	Chicago	Davenport
	2 "	"	"	LaSalle
	2 light		"	LaSalle
	10 loads	grain	Utica	Chicago
	4 "	cement	La Salle	"
	2 light		Davenport	"
1913	22 loads	salt	Chicago	Davenport
	4 light		"	Morris
	12 loads	grain	Hennepin Canal	Chicago
	6 "	"	Morris	"
	8 light		Davenport	"
1914	18 loads	salt	Chicago	Davenport
	6 "	grain	Hennepin Canal	Chicago
	2 "	lumber	La Salle	"
	9 light		Davenport	"
Total	52 loads	salt	Chicago	Davenport
	2 "	"	"	La Salle
	2 light		"	"
	4 "		"	Morris
	10 loads	grain	Utica	Chicago
	18 "	"	Hennepin Canal	"
	6 "	"	Morris	"
	4 "	cement	La Salle	"
	2 "	lumber	"	"
	19 light		Davenport	"

54 loads	West bound		
6 light	" "	94 loads	79%
40 loads	East bound		
19 light	" "	25 light	21%
		119	100%

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Tons Carried and Freight Revenue

	Tons	Revenue
Salt	5,322	$5,745.27
Grain	3,216	3,797.53
Cement	386	292.49
Lumber	210	228.00
Charter	...	125.00
Totals	9,134	$10,188.29

Operating Expenses

	Amounts	Cost per Ton on Cargo Carried
I. & M. Canal tolls	$1,041.41	.114
Wages (includes lay up and fit out)	7,455.20	.816
Steward's Dept.:		
Provisions	2,264.00	.248
Coal and washing	8.03	.0009
Sundries	81.01	.009
General sundries	103.15	.011
Mate's Dept.:		
Ship chandlery	296.79	.033
Paint and oil	179.34	.020
Engineer's Dept.:		
Fuel	1,844.32	.202
Oil	53.17	.006
Repairs	724.75	.79
Supplies	33.68	.003
Loading and unloading (ex. grain)	2,054.01	.225
Loading and unloading grain	360.23	.0391
Totals	$16,499.09	$1.806

Carried 9,134 tons in 94 loads—average load 97 tons.

On 4′ 8″ draft (which we should have had)—average load 150 tons.

On 94 loads at 150 tons each, should have carried 14,100 tons.

Basis 14,100 tons, operating cost—$1.17 per ton.

On actual tonnage carried, received—$1.12 per ton.

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